Behind the Masks of Protesters

Unravelling the Motivations and Opportunities for Arab Spring Participation

Chris Wegner

Master's Thesis
Department of Political Science

University of Oslo

Spring Semester, 2015

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Abstract

This thesis analyzes and compares the motivations and opportunities that drove Arabs to participate in the so-called Arab Spring in the countries of Algeria, Jordan, Tunisia and Yemen. I employ a rather unique bottom-up approach of identifying the factors that moved individuals to take to the streets – an approach that has been mostly neglected by scholarly works focusing on Arab Spring participation. By quantitatively analyzing the most recent survey data of the Arab Barometer, I find that motivations and opportunities play a complementary role in determining protest participation. More specifically, I show that participation in the Arab uprisings was most consistently *motivated* by perceptions of unequal treatment and simultaneously *facilitated* by opportunities afforded through membership in political parties and/or civil organizations as well as the usage of the internet for political matters. Furthermore, attending religious gatherings, such as Friday prayers, seemed to have facilitated protest participation only in countries that experienced regime leadership change, such as Tunisia and Yemen. Overall, the robustness of my findings suggests that future research on social movements should continue to use motivations (based on grievances) and opportunities in a complementary approach.

Key words: *Arab Spring, motivations, relative deprivation, opportunities, regime change, quantitative research, binary logistic regression*

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Acronyms and Abbreviations

AB	Arab Barometer
AUC	Area Under the Curve
EU	European Union
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
HDI	Human Development Index
HL	Hosmer-Lemeshow (test)
ISIL	Islamic State of Iraq and the Levant
MENA	Middle East/North-Africa
NATO	North Atlantic Treaty Organization
OLS	Ordinary Least Squares
PAC	Percentage Accuracy in Classification
RD	Relative Deprivation
ROC	Receiver Operating Characteristic (curve)
UAE	United Arab Emirates
UNDP	United Nations Development Programme
US	United States (of America)

1 Introduction

> *"The Arab Spring was caused by a multitude of factors (economic, political, social, cultural and religious), but its origins also lay in belief. Not a singular belief, but a collective, multifaceted belief that liberation is not only needed, but also possible."* (Eghdamian, 2014)

The sudden onset and intensity of the wave of the Arab uprisings that began in late 2010 has puzzled many political scientists (Lynch, 2011). The Arab Spring is often seen as a reaction to authoritarian rule based on civil and democratic values, such as inclusive citizenship, democratic governance, participation in civil society, demands for human rights, social justice and dignity, anti-corruption and so forth (Breisinger, 2012:1).[1] After events unfolded, scholars like Brownlee et al. (2013) have argued that the uprisings were unavoidable because of a mixture of various factors, such as demographic shifts, limited social mobility, cronyism and elitism, and unemployment. Thus, there exist a vast number of factors that arguably moved Arabs to protest, but there is still no clear consensus on which factors actually played a determinant role.

The reason for this lack of a coherent explanation for the origins and outcomes (so far) of the Arab Spring can be traced to two aspects. First, scholarly work on social movements in Arab societies is limited to mostly descriptive accounts (Wiktorowicz, 2004). In other words, there exists a lack of theoretical analyses on collective action in the Arab world. Wiktorowicz (2004:3) states, for instance, that "the study of Islamic activism has […] remained isolated from the plethora of theoretical and conceptual developments that have emerged from research on social movements' contentious politics." Thus, social or protest movements in the Arab world have often been misunderstood by scholars because these movements were not commonly analyzed within the traditional (Western) sense of critical citizenship and its role in social movements. For example, regional politics have often been simply referred to as *the Arab Street* – which denotes an image of angry mobs and unruly hordes that spark mayhem and are easily manipulated (Ben Moussa, 2013:47-8). This interpretation posits a challenge to an adequate understanding of the developments in the Arab region. This is because the connotation of the term *Arab Street* undermines any reasonable analysis of Arab protest participants

[1] For pragmatic and readability reasons, I use the terms Arab Spring, Arab uprisings, revolutions, protests, demonstrations and so forth interchangeably. I am aware, however, that it would be more appropriate to distinguish between terms such as *revolution* and *revolt* (see for instance: Perthes, 2012:67).

as rational actors. Such conceptualization distorts the reality of the Arab public sphere, because Arab protesters are diminished to angry mobs that constitute irrational subsets of Arab society (Regier and Khalidi, 2009). Eickelman (2003:1) further argues that "the term 'street', rather than 'public sphere' or 'public', imputes passivity" and Bayat (2003:226) further adds that the term suggests "a reified and essentially 'abnormal' mindset." Harik (2006) points out that this misunderstood conceptualization of Arab protests is also often the reason behind the contention that Arab countries' social and cultural foundations are incompatible with democratic and liberal values (e.g. Huntington, 1996). Hence, without accrediting Arabs as rational actors within a public sphere, a proper comprehension of the recent transformations in the Arab world appears to be impossible.

The second aspect relates very much to the first one, entailing the fact that the outcomes of the Arab movements have been mostly explained by governmental action. In other words, a clear account of the *participants'* attitudes and behavior in protest movements in Arab countries appears to be missing.

My thesis attempts to overcome these challenges and identify potential micro-level factors that explain protest participation in the Arab Spring. To that effect, I analyze protest behavior from a unique bottom-up perspective. Unlike existent literature that focused on structural factors like oil wealth, hereditary monarchism, security apparatus loyalty, and foreign support, I investigate the feelings, perceptions and attitudes of actual protest participants. I do so by employing the most recently published data of the Arab Barometer (AB, 2014). While I regard Arab citizens as rational actors, I am going to theorize that both relative deprivation theory and opportunity-based mobilization theory should be used in a *complementary* approach to explain protest participation. Correspondingly, I am going to hypothesize that both grievances as well as opportunity structures facilitated the likelihood of protesting. Thus, I connect the motivational aspects that initially drove Arabs to participate in movements with the opportunistic factors that enabled them to do so more easily. By individually analyzing these motivations and opportunities in different Arab countries and subsequently comparing the results with each other, I hope to uncover the factors that explain participation. More specifically, as I unravel the motivations and opportunities that spurred protest participation in countries that experienced regime leadership change vis-à-vis countries that did not, I hope to investigate the underlying mechanisms that explain the discrepancy in the "outcome" (regime change versus resilience) of Arab protest activity.

This bottom-up approach attempts to fill a gap in social movement literature, as it provides a *complementary* approach to scholarly works in explaining when movements are "successful" (in bringing about change) and when they are not. In other words, my approach attempts to complement the existent literature on social movements: while most academic work has focused on the macro or structural factors when explaining Arab Spring developments and outcomes, the micro or individual-level perspective of actual protest participants has been largely ignored (Hoffman and Jamal, 2014:605). These individual-level factors should provide a *complementary* assessment of reasons for Arab Spring participation to macro-factors like oil wealth or foreign support. Moreover, to further investigate if regime durability (change versus resilience) can be explained with this bottom-up analysis, I select two countries that experienced regime leadership change (Tunisia and Yemen) and two countries that did not (Algeria and Jordan). Thus, my research question and sub-question can be formulated as follows:

Research Question: *To what extent did motivations and opportunities play a complementary role in facilitating protest participation in the Arab Spring?*

Sub-R.Q.: *Are there significant differences in these motivational and/or opportunistic factors between countries that experienced regime leadership change vis-à-vis those that did not?*

My overall findings support my hypotheses that both motivations and opportunities play a determinant role in explaining Arab Spring participation. In particular, I find that perceptions of unequal treatment were the most consistent *motivation* for Arab Spring participation, and being a member of a political party and/or civil organization or using the internet for political purposes were the most prevalent *opportunity* factors in promoting Arab Spring participation. Moreover, in countries that experienced regime leadership change, a more frequent attendance at religious gatherings, such as Friday prayers, appears to have increased the likelihood of protest attendance. On the other hand, attending Friday prayers had no significant effect on protest participation for countries in which the regime remained resilient (did not undergo regime change). These findings are robust to a variety of standard robustness and sensitivity checks. Potential limitations include endogeneity and limited external validity.

This chapter is structured as follows. The ensuing section will briefly outline the developments and status quo of the Arab Spring uprisings. Then, I review the macro factors that attempt to explain the discrepancy in "outcomes" of the Arab uprisings. Thereupon, I argue for the utility of my bottom-up approach which should complement our understanding of that discrepancy. Since I investigate the motivation and opportunity factors in four countries – two

of which experienced regime change and two that did not – in the fourth section of this chapter, I expand on the developments that led up to the Arab Spring in these four cases. Finally, a brief conclusion reviews the main arguments and provides an overview of the structure of this thesis.

1.1 Laying the Ground: Regime Overthrow vs. Regime Survival

The regional uprisings commonly referred to as the Arab Spring arguably began when Mohamed Bouazizi, a Tunisian street vendor, set himself on fire in protest against unfair treatment by the police (The Guardian, 2011). The Arab Spring has been argued to be the peak of discontent and unrest that manifested in the Arab world for over a decade (Noueihed and Warren; 2012:57). Indeed, Ottaway and Hamzawy (2011) argue that protests, strikes, and demonstrations have been increasing over the past decade and eventually escalated in late 2010.[2] More particular, they connote that

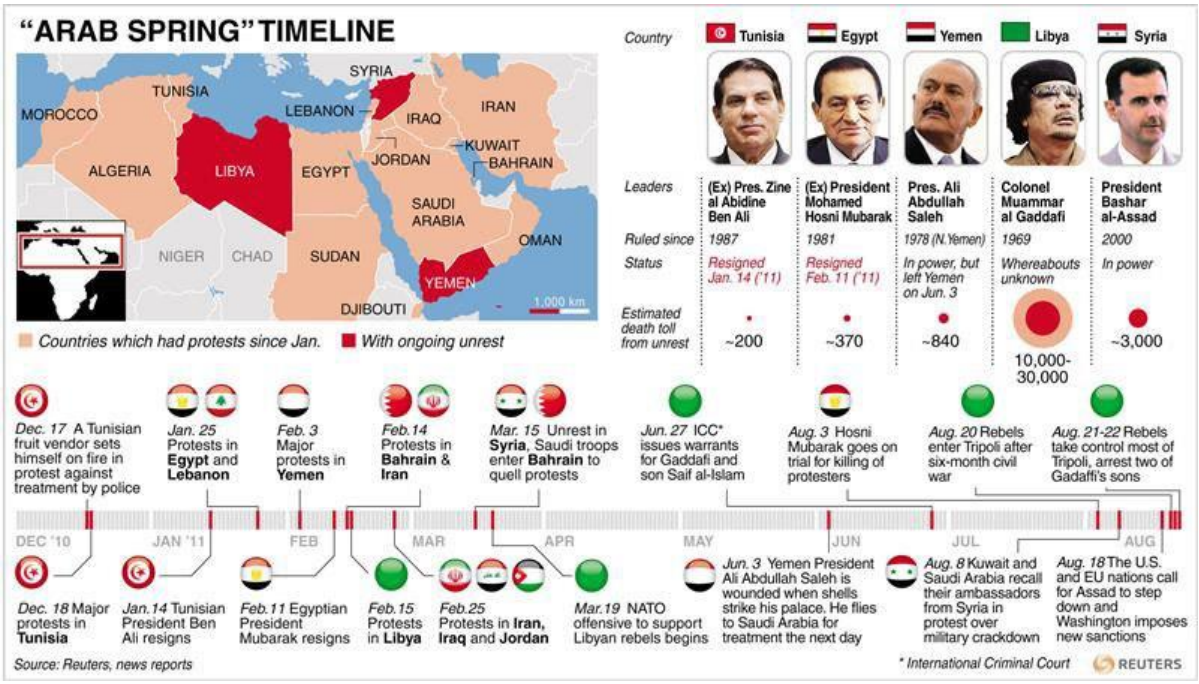
> *"The uprising that started in Tunisia in late 2010 was not a completely new development, but rather a more dramatic example of the unrest common across the region, particularly in Egypt, Morocco, Algeria, and Jordan." (Ottaway and Hamzawy, 2011:4)*

Ottaway and Hamzawy (2011:2) further argue that the Arab Spring was mostly rooted in social and economic grievances. However, these grievances also translated into political implications, such as demands for more freedom of speech, as protests dispersed across countries (Ibid:8; Lynch, 2013). This is most evident in the fact that protest activities – which are usually strictly controlled if not even outright banned in authoritarian regimes – actually occurred.

Figure 1.1 serves as a visual reminder of the initial events of the Arab Spring, providing a timeline of regional protests and developments from December 2010 until August 2011.[3] As is evident from the figure, protest movements happened to some extent in almost all countries of the Middle East/North-Africa (MENA) region. Furthermore, Figure 1.2 illustrates how complex the situation of the MENA-region remains after almost four years of the eruption of the Arab Spring.

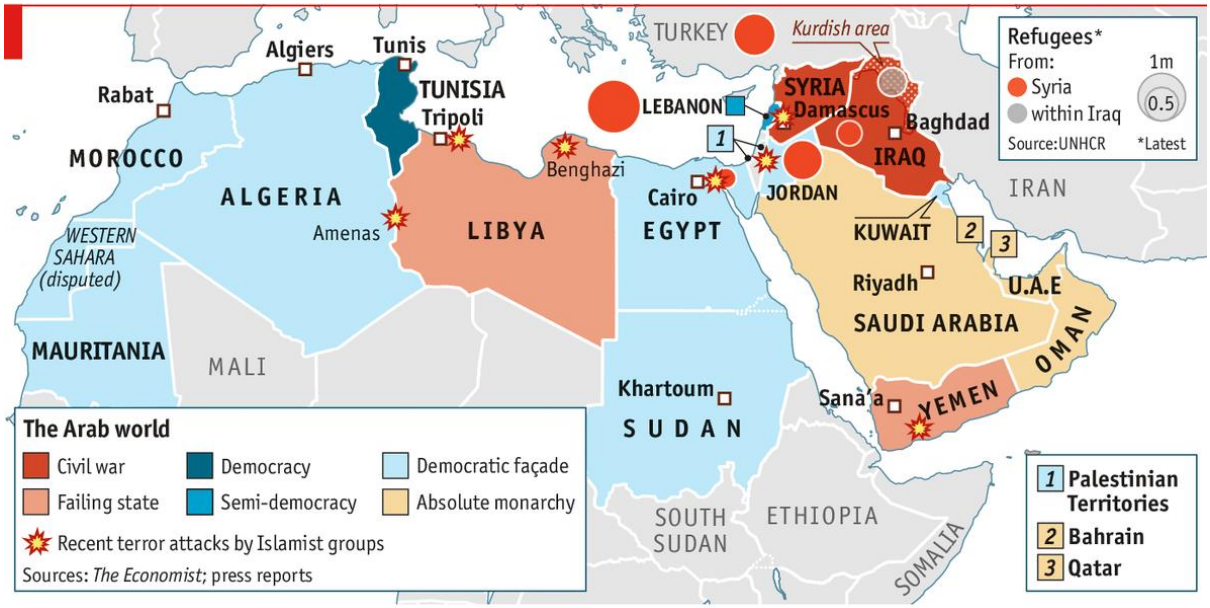
[2] For a review on protest movements in key Arab states before late 2010, see Ottaway and Hamzawy, 2011:2-7.
[3] It is noteworthy that the four regimes which underwent regime change experienced quite substantial amounts of deaths from unrest. But while Syria did so as well, Syrian President al-Assad was able to remain in power despite international pressure and ongoing civil war. Thus, the death toll from unrest might play a role in explaining more intense grievances, but it cannot explain the outcomes of social movements by itself.

Figure 1.1: One Year onwards - The Arab Spring's Initial Phase (2010-11)



Source: Daily Mail, 2011.

Figure 1.2: Map of the MENA-Region (July, 2014)



Source: The Economist. 2014.

Figure 1.2 highlights that more than four years after the onset of the Arab Spring, the prospect of Arab countries transitioning into stable democracies remains dim (Totten, 2014). Syria and Iraq remain embroiled in civil war, with the terrorist group ISIL (Islamic State of Iraq and the Levant) contesting security and state sovereignty (Al Jazeera, 2014).

Libya is a failing state, embroiled in civil war ever since al-Gadaffi was removed from power. The power vacuum in Libya, which was created after NATO's *success* in supporting rebels to oust al-Gadaffi, left the country divided, without state security services and with rival militias fighting in a civil war scenario (DW, 2014; CNN, 2015).

In Yemen, Shia-led Houti rebels from the North took over the capital Sana'a and other cities earlier this year, contesting state power vis-à-vis the Sunni movement led by the President-elect al-Hadi (Al Jazeera, 2015c; Daily Mail, 2015). The recent developments of violent clashes between Sunni-Southerners and Shia-Houthis, as well as the Saudi-led coalition conducting air strikes against the Houthi rebels undermine the prospect of stability and peace in Yemen (Al Jazeera, 2015d).

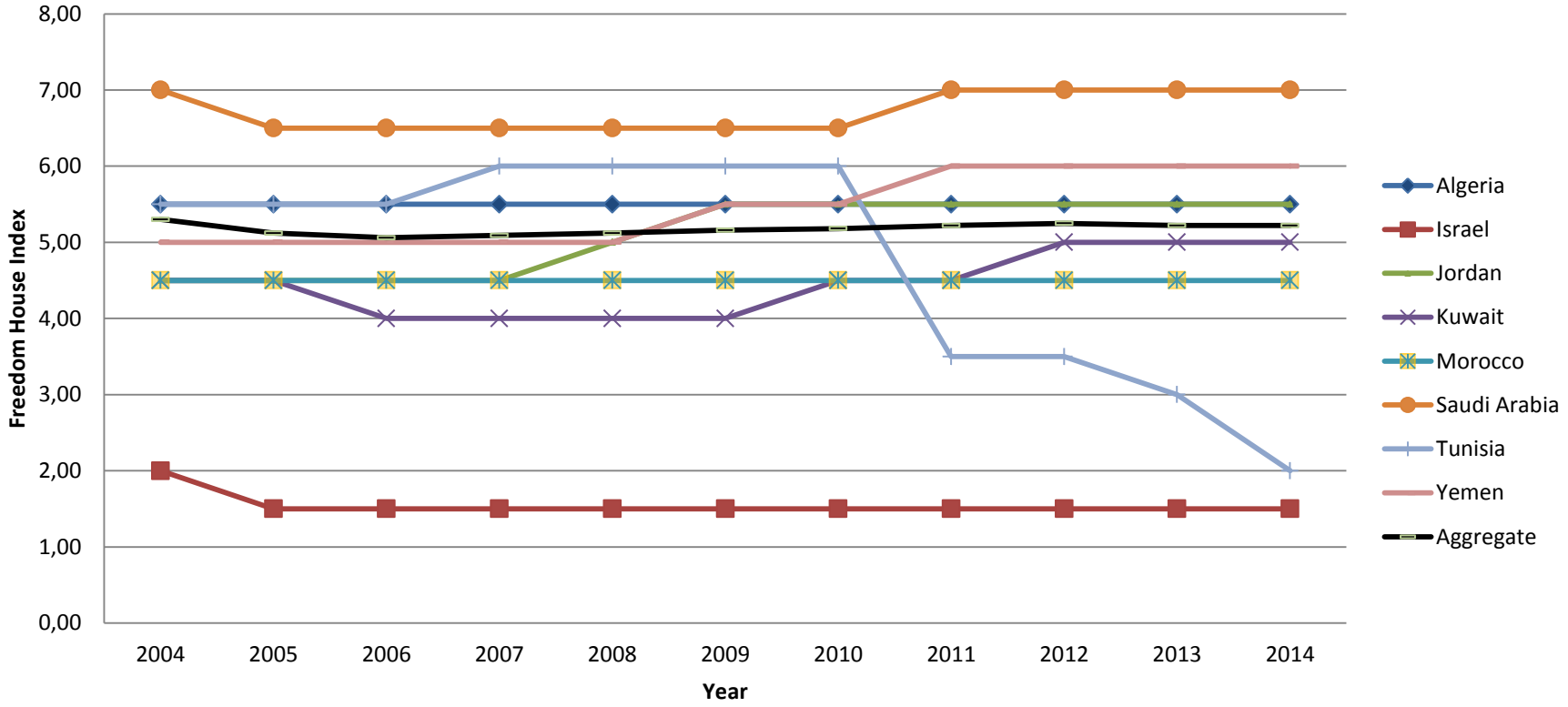
On the other hand, Egypt experienced two regime changes as a result of popular discontent and active protesting in Tahir Square among many places. With the initial ousting of former President Mubarak, the new democratically elected President Mohamed Morsi came to power in 2012 but was removed from power by a military coup d'état in 2013 – putting former military marshal Abdel Fattah el-Sisi in power (BBC, 2013; The Guardian, 2014a).

Other countries, like Jordan, Algeria, Morocco, and Oman pursued paths of limited reform and other tactics to succeed in largely avoiding a change in leadership, for now.

Tunisia is arguably the only *success story* of the Arab Spring so far. Tunisians not only succeeded in the ousting of President Ben Ali in January 2011, which gave other Arab countries the hope of change being possible. Tunisia is also the first and only Arab country with fairly democratic elections and relative stability (The Guardian, 2014b). But even in contemporary Tunisia "the threat of violence hangs over a fragile democratic process" (The Guardian, 2014b; Al Jazeera, 2015a; Al Jazeera, 2015b).

Thus, the Arab Spring protests had a different impact on individual Arab countries. Figure 1.3 provides an overview of the divergent developments by illustrating the Freedom House Index for each Arab country over a time period of the last 10 years. While the rating of the Freedom House improved for countries like Tunisia after the onset of the Arab Spring protests in 2010, the index did not change at all for other countries (e.g. Algeria), or worsened for yet others (e.g. Yemen).

Figure 1.3: Freedom House Index, MENA countries, 2004-2014



Source: Freedom House, 2015.

Note*:* The Freedom House Index ranks levels of political rights and civil liberties in each state on a scale from 1 (most free) to 7 (least free). The status of each country can be free (1.0-2.5), partly free (2.51-5.5) or not free (5.51-7.0). A status is determined by the evaluation of countries' sub-categories on *political rights* (electoral process, political pluralism and participation, functioning of government) and *civil liberties* (freedom of expression and belief, associational and organizational rights, rule of law, personal autonomy and individual rights). Figure 1.3 depicts aggregate scores of political rights and civil liberties, which are ranked on a scale from 1 to 7.
I excluded some MENA-countries to make the Figure readable. Nonetheless, the "aggregate" line in Figure 1.3 is based on an average score of *all* MENA countries. Respective values for all MENA-countries are depicted in Table A.12 in the Appendix

The overall tendency of the Freedom House Index appears to be relatively consistent, depicted by the fairly horizontal "aggregate" line in Figure 1.3. This average consistency in the Freedom House score might be due to the fact that the quite large improvement for Tunisia and the slight decline for several MENA countries (e.g. Yemen, Saudi Arabia, Kuwait) balance each other out. After all, Dunham (2015) contends that "global press freedom is at its lowest rate in more than 10 years, with the Middle East and North Africa showing the biggest fall." As most of the Arab countries remain being ranked as "partly free" or "not free" until today, the continuing average index of about 5.25 suggests that a lot of Arab leaders continue to use tactics like limiting citizen's rights and freedoms in order to cling to power. In fact, only four countries experienced the overthrow of former rulers, and all of them were *presidents* of authoritarian governments: Ben Ali of Tunisia, al-Gaddafi of Libya, Mubarak of Egypt and Saleh of Yemen (The Economist, 2011 and 2014b). But while Tunisia held arguably relative free democratic elections in late 2014, transformative development was less successful in the other three countries – as previously discussed above (BBC, 2014).

What explains why the presidents from Algeria, Jordan, Tunisia and Yemen were forced to resign, while other regional leaders remained in power? Williamson and Abadeer (2014) argue that most academic work on this phenomenon has attempted to explain regime change or persistence by alluding to macro or structural factors; and I will briefly review the main findings in the following section.[4] Then, I explain why I am using a bottom-up, micro-level approach to explain protest behavior – which is, I argue, complementary to the macro explanations.

1.2 Macro-Level Explanations for Regime Durability

The macro-level theories explain regime durability in terms of the responses to protests by the people in power. While responses to protests varied from country to country, leaders usually used all means available to remain in power. The main macro-level factors found to affect the durability of regional regimes are hereditary monarchy, oil wealth, security apparatus loyalty and foreign support. In addition, other country-specific characteristics, such as small territory or homogenous populations, make it easier for leaders to stay in power.

[4] Note that there is no clear consensus on the factors that contributed to Arabs participating in the uprisings or on the foundations that enabled some leaders to remain in power while others did not.

Geddes (1999) argues that authoritarian regimes can be categorized in three types: military regimes, personalist regimes, and single-party regimes. Based on empirical evidence, Geddes (1999) contends that some of these regimes are more resilient than others because they are subject to different pressures. Some of the most relevant pressures relate to the trend of economic development and elite alignment or split, as these appear to greatly impact transition to democratization or regime collapse (Ibid). Geddes (1999) argues, for instance, that single-party regimes are more likely to resist change compared to the other two types of authoritarian regimes, because they are usually more likely to have strong elite alignments and better chances to withstand economic crises. Yom and Gause (2012) have argued that authoritarian *monarchies* are more resilient than other authoritarian regimes.[5] After all, none of the eight monarchies (Morocco, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, UAE, and Bahrain) experienced regime change in the wake of the Arab Spring.[6] Geddes (2009:15) argues that "monarchies that have ended since 1946 have all been ousted by their own armed forces." However, "coups and coup attempts are less common in monarchies than in other kinds of dictatorship." (Ibid:33). This monarchal exceptionalism can be explained by cultural and institutional factors (Ibid).

The cultural explanation suggests that Arab monarchs enjoy more religious and historical legitimacy and that this legitimacy induces more loyal support from citizens of kingdoms than republics (Geddes, 2009; Menaldo, 2012). As each country is different, a combination of various legitimizing factors enabled rulers to stay in power. In some countries, this legitimacy is rooted in religion. For example, the kings of Jordan and Morocco both claim links to the prophet Mohammed, and Saudi Arabia portrays itself as protector of the holiest places of Islam: Mecca and Medina (Vidino, 2013). In other countries, the legitimacy might derive from monarchs protecting the stability of a country through the preservation of its traditional tribal system (Ibid).

The institutional explanation for monarchal exceptionalism suggests that the monarchs can defuse public dissatisfaction by introducing popular, but limited reforms (Menaldo, 2012). Indeed, regional *presidents* attempted to appease protesters by introducing socio-economic reforms, too. However, presidents did not possess the institutional legitimacy of residing above the law. Thus, they could not enact reforms in such a rapid, efficient and strict top-

[5] For a comprehensive review on the debate of the Arab monarchies' resilience, see also: Matthiessen (2013), Gause (2013), Ramady (2014), Yom (2012), Colombo (2012), Bank and Richter (2012), Guzansky (2014), Basar (2013), Echagüe (2013), Tétreault (2011).

[6] However, Bahrain experienced the most violent upheaval among these countries, causing Saudi intervention.

down manner in which monarchs were able to (Ibid). Therein, the monarchs enjoyed more flexibility. The kings of Jordan and Morocco, for instance, both introduced reforms as soon as the Arab Spring appeared to spread to their countries (Ibid). Although these promised reforms enjoyed vast credibility, they were often never fully realized (Jamal and Lust-Okar, 2002). Beyond that, monarchs also avoided citizens' blame by scapegoating unpopular elected officials for their countries' problems. Last but not least, incremental liberalization as well as nepotism, extended family ruling and royal relatives occupying key public institutions appeared to have further helped as stabilizing institutional factors in kingdoms (Herb, 1999; Basar, 2013).

The so-called "resource curse" relates to the argument that countries which possess an abundant amount of natural resources, such as oil, can preempt revolutionary change by paying off their citizens (Ross, 1999; Rosser, 2006).[7] Oil-wealthy regimes are able to increase public salaries, supply work opportunities in an often already bloated public service, or provide subsidies on various goods. As the culture of rent-seeking usually involves corruption, it allows for the cooption of both elites and wider social groups; for example, by enabling rulers to provide their citizens – often those that oppose the regime – with financial means (Petras, 2011). For example, shortly after the Arab Spring spread from Tunisia through the region, the Kuwaiti regime paid every citizen $3,500 (Vidino, 2013). Thus, distribution of extensive amounts of resources has probably contributed to helping some rulers stay in power.

A third element that contributes to a regime's durability is the loyalty of the regime's coercive apparatus, e.g. the elite or army and security forces (Nepstad, 2011; Bellin, 2012). If the military is more likely to remain loyal to the regime, revolutions are less likely to succeed and authoritarian leaders have greater chances to remain in power (el-Meehy, 2014, Lutterbeck, 2011). This is because military loyalty enables rulers to repress challengers, reduce social tensions, and undermine internal contradiction levels, such as intra-elite conflict (Korotayev, 2013). Authoritarian regimes use security means to organize social connections, as they are vertically linked with society, preventing any horizontal ties within civil society itself. This means that there are no established rules for society to connect without the strict supervision of the authoritarian system. The vertical connections functions through elite alignment that

[7] Karl (2004: 2-3) states, for example, that "countries dependent on oil as their major resource for development are characterized by corruption and exceptionally poor governance , a culture of rent-seeking, often devastating economic, health, and environmental consequences at the local level, and high incidences of conflict and war. In sum, countries that depend on oil for their livelihood eventually become among the most economically troubled, the most authoritarian, and the most conflict-ridden in the world."

ensures the authoritarian state's security and stability by connecting it to citizens through well-established, but controlled, institutions (McAdam et al., 1996). el-Meehy (2014:16) argues, for instance, that "political grievances are likely to play a larger role in instigating uprisings where *elite splits* are present that create the space for greater politicization among citizenry [… and] politically driven mobilization in opposition to ruling regimes" (my emphasis). On that note, militaries that share ethnic, tribal or sectarian connections with the regime are more prone to remain loyal to the latter than military personnel that mainly rely on individual incentives, such as material benefits or increased repression (McLauchlin, 2010; Dalacoura 2012).

Lastly, foreign support or intervention appears to have been important. This becomes evident when comparing the cases of Syria and Libya, for instance. Syrian's leader al-Assad was able to remain in power, while Libya's President al-Gadaffi was removed. However, Syrian military was not particularly more loyal to its regime than the Libyan military to its counterpart, while both countries possessed oil resources and neither was a hereditary monarchy (Williamson and Abadeer, 2014). The discrepancy in regime resilience is thus arguably explainable by the fourth factor of foreign support or intervention, as al-Gaddafi might have held on to power longer without NATO intervention and al-Assad might not have fared so well without continuous Iranian support (Brownlee et al., 2013). Similarly, Bahrain might not have "survived" the pressure of the intense Shia protests without Saudi-led GCC actions interfering and stabilizing the Sunni government (Yom, 2012). Moreover, external ties and influences from other countries are also increasingly relevant when accounting for the death toll caused by protests, as increased death rates can attract foreign media attention that can motivate human rights agendas and subsequent pressure from other countries, such as demanding the protection of civilians (Korotayev, 2013; The Economist, 2011).

These macro factors undoubtedly played an important role in the Arab Spring uprisings, but I argue that this view is only one part of what determines whether regime change actually comes to a country. Analyzing only the few people in power is not sufficient in explaining social movements, because the grassroots dynamics of social movements themselves are important, too. These dynamics portray the action taken by protesters and their coordination efforts linked to the sharing of socio-economic and political grievances (Ottaway and Hamzawy, 2011:13). Indeed, protest participants' behavioral and motivational part in influencing social movement outcomes has been highly under-researched (Hoffman and Jamal, 2014:605). Thus, the perspective of participants' point of views is the focus of my thesis.

1.3 Micro-Level Factors that explain Regime Durability

While I acknowledge the importance of the macro-level factors in explaining social movements, I believe that the role of the protest participants themselves is often neglected.

The social movements that began in late 2010 in the Arab world were influenced by both people in power *and* citizens. By not only understanding the mechanisms that enabled leaders to stay in power, but also acknowledging the importance of the motivations and opportunities that led Arabs to actually participate in protests, we can widen our knowledge of the dynamics of social movements. This is in line with the argument of Hoffman and Jamal (2014:604) and Eyadat (2012:9), who contend that there is a lack of academic work on who the actual persons were that participated in the Arab movements. The motivations that move people to take to the streets, I argue, are mostly associated with political, social, and economic forms of relative deprivation. This is because although protests among the MENA-countries "shared a common call for personal dignity and responsive governments […they also] reflected divergent economic grievances and social dynamics" (Anderson, 2011:1). While motivations then provide the initial stimulus for protest participation, opportunities allowed for the channeling of these feelings through the sharing of them by continuously interacting with other motivated citizens.

In particular, I argue that citizens who were relatively politically (lack of democracy, freedom, and justice), economically (standard of living, unemployment, and inequalities), and/or socially (reclaim identity, dignity, and voice) deprived were more likely to participate in the protest movements known as the Arab Spring than those who were not. This is because relative deprivation leads to an active desire to change the status quo. While this contention refers to the motivational aspect of promoting protest participation, I contend that opportunities complemented these motivations in facilitating Arab Spring participation. Therein, I argue that citizens who made use of opportunities such as gaining access to certain social platforms (which allowed for the coordination/sharing of feelings) were more likely to have participated in the protest movements known as the Arab Spring, as well. This is because opportunities and motivations reinforce each other in making it possible for dissatisfied citizens to find solutions to overcome their status of relative deprivation.

By using micro-level data to attain insight into the thoughts, perceptions and behavior of the people that actually participated in protests, I hope to complement our understanding on the origins, developments and outcomes (so far) of the Arab Spring movements. Verwimp et al.

(2009:307-308) recognize the importance of these micro-foundations, as they argue that these reflect the fundamental level in which civil uprisings originate. After all, protest movements shape and are shaped by individuals who partake in protests. To make inferences of social behavior such as protesting based on macro-level data alone possibly entails introducing bias (Freedman, 1999). This fallacy relates to aggregation bias and the assumption that relationships observed for groups necessarily hold for individuals (Ibid). Thus, I employ survey data instead of the commonly used aggregate country-level data to complement existent arguments for our understanding of protest participation. In doing so, I also hope to find potential differences in the factors that contributed to participation in demonstrations in countries that experienced regime change vis-à-vis countries that did not experience such change. I investigate the motivations and opportunities that drove Arabs to participate in the demonstrations in two countries that experienced regime leadership change, Tunisia and Yemen, and two that did not, Algeria and Jordan.

1.4 Recent Developments in Four Cases

Ottaway and Hamzawy (2011:4) argue that Jordan and Algeria should have been prone to change since they are geographically very closely located to countries that experienced regime change. By comparing the motivations and opportunities of protest participation for these two cases vis-à-vis two countries that experienced regime change (Tunisia and Yemen) might help us understand what explains the durability of some regimes over others. This section provides a brief descriptive account on the developments that led up to the Arab Spring for the four cases of Tunisia, Yemen, Algeria, and Jordan.

Former **Tunisian** President Zine el-Abidine Ben Ali was the first Arab president to be ousted from power in the Arab Spring (Anderson, 2011). The Tunisian revolution, also referred to as the Jasmine revolution, was the initial onset of the Arab Spring that spread through the MENA-region (Ibid). Tunisia had long established the region's "best educational system, largest middle class, and the strongest organized labor movement" (Ibid). Behind these establishments, however, Ben Ali's government was highly corrupt and undermined free expression and political competition (Ibid). For instance, the Tunisian constitutional referendum in 2002 established a two-chambered parliament, but also enhanced the power of the president by allowing unlimited terms in office and increasing the incumbent's age limit. Those measures allowed Ben Ali to get re-elected in 2004 as well as 2009 with high margins, despite allegations of election fraud (Nucifora et al., 2014). Ben Ali also created an image of Tunisia

as a modern and tourist-friendly state, but behind this façade the infrastructure and economic conditions of most of the country remained underdeveloped (Ibid). Furthermore, Ben Ali's government was entrenched by cronyism and nepotism, as "more than half of Tunisia's commercial elite were personally related to Ben Ali" – a network called "the Family" (Ibid). Eventually, events escalated in late 2010. Demonstrations broke out over unjust law enforcement and brutal security crackdowns, which spread to even remote areas by social media coverage (Anderson, 2011). Demonstrators and activists were often arrested. Shortly before his ousting in January 2011, Ben Ali pledged to improve economic conditions, promising to create over 300,000 jobs, as well as allow for more press freedoms – unsuccessfully (Ibid).

Yemen is one of the least developed countries in the Arab world (GIZ, 2013). As a result of confined oil reserves that are expected to deplete by 2017, as well as the lack of a diversified economy, Yemen is facing overall economic hardship (Ibid). The challenges that Yemen is facing include dire poverty, unemployment, a "poor education system and a low literacy rate, lack of access to health care and extreme water shortages" (Ibid). Besides these problems, Yemen's situation is even more complicated by the ongoing conflict between Shia-minority of Houthi rebels in the North of the country facing the Sunni Yemenis in most of the rest of the country. The underdeveloped state structure remains prone to cronyism and corruption. For instance, an amendment in 2001 allowed former President Ali Abdullah Saleh, in power since 1990, to remain in office subject to re-election until 2013 (Carnegie Endowment, 2008). Besides also extending the duration of presidential terms from five to seven years, Saleh's governmental institutions were very prone to corruption due to the government's inability to provide adequate salaries to its employees (Ibid). Overall, Saleh governed strictly authoritarian through centralizing and concentrating political power. In February 2012, Saleh resigned under protest pressure and Abd Rabbuh Mansur al-Hadi took office. This transition occurred under a deal brokered by Saudi Arabia, which granted Saleh immunity from prosecution and allowed al-Hadi to run unopposed elections (Al Arabiya, 2012). Various political challenges that Yemen continues to face include "a strong Al-Qaeda presence, tribal conflict, a secessionist movement in the south, a Shia insurrection in the north, […] and a refugee influx from Somalia" (Ibid).

When **Algerian** governmental officials refused to accept an Islamist victory in the 1991 election, a civil war broke out between the Algerian government and various Islamist groups (The Economist, 2014a). In 1999, Abdelaziz Bouteflika became the Algerian president and he presided over the end of the Algerian civil war in 2002. Since then, Bouteflika has kept Algeria

rather peaceful for over more than a decade (Ibid). However, Bouteflika's governance remained highly corrupt (Ibid). Re-elections in 2004 were highly contested due to fraud allegations (NYTimes, 2004). In addition, two constitutional amendments allowed Bouteflika to run for a third and fourth term in 2009 and 2014, respectively. While promising economic reforms, the Algerian economy still remains mostly dependent on depleting oil reserves. Proposed economic diversification has had little, if any, success in improving employment and living standards (Robbins, 2014). Unsurprisingly, protests demanded regime change and an overall improvement in political and economic conditions. But despite some protests, the Arab Spring has largely ignored Algeria. Algerian President Bouteflika appeared to have managed to appease public dissatisfaction in 2011 by lifting a 19-year-old state of emergency – a key demand of anti-government protesters (BBC, 2011).

Unlike the former three cases of presidential systems, **Jordan** is a constitutional monarchy. As in any other Arab monarchy, the Jordanian king enjoys vast legitimacy and power and is "immune from any liability and responsibility" (Constitution, Article 30). Criticizing the monarch is often punishable with the death penalty, for instance. In comparison to the Jordanian king and his Royal establishments, institutions like the parliament have almost no power (Tobin, 2012). Jordan's monarchal rules facilitate the prosecution of peaceful dissidents or activists, as demonstrations are mostly prohibited. Economically, Jordan is a quite small economy in the region and remains heavily reliant on foreign trade and assistance (CIA Factbook, 2014). This is because Jordan lacks sufficient water, oil, or other natural resources (Ibid). Nonetheless, the country experienced economic growth since King Abdullah II came to power in 1999 and introduced economic reforms to attract foreign investment and create jobs, which subsequently led to growth (Ibid). Conservative bank policies helped Jordan to remain quite stable despite the global financial regression that began in 2008/9 (Ibid). Despite of overall economic well-doing, problems such as chronic high rates of poverty, food and fuel price inflation, increased unemployment, and corruption sparked protests in early 2011 (Tobin, 2012). Jordanians were dissatisfied "with the rising price of essential products like fuel, and the slow pace of promised political and economic reforms" (Al Arabiya, 2012). The Jordanian economy is further struggling by the increasing numbers of Syrian and Iraqi refugees, while not receiving adequate international aid to support them (Ibid). The conflict in Syria has also undermined "tourism in Jordan – a vital revenue source – as well as external trade, with many of its export routes cut when its neighbor closed its borders" (Ibid). These developments have led to many Jordanians fearing that chaos will spread in their country, even mov-

ing some protesters to demand the abdication of King Abdullah II and an end to monarchial rule (NYTimes, 2012). King Abdullah II initiated a successful response (for now) to these protests by using the parliament and prime ministers as scapegoats, dissolving the former for new elections and reappointing the latter (CNN, 2012).

All in all, protests in the four selected countries appeared to have three forms of sources: political, social, and economic factors.[8] Politically, protesters demanded enhancements in the rule of law, transparency of the government, freedom of speech, and civil and organizational rights. Social demands included improvements in social justice and dignity, as well as limiting corruption and nepotism. Economically, protesters pursued demands for better living conditions, enhanced employment opportunities, equal income distribution, and less poverty.

1.5 Concluding Remarks and Structure

To recapitulate, this thesis seeks to investigate the factors that contributed to the occurrence of protest movements in the Arab world more closely. I argue that traditional literature on social movement cannot fully explain the Arab uprisings because of various limitations, such as the lack of theoretical work on Arab social movements, the misconception of perceiving Arab protesters as irrational actors, and a prevalent neglection of attempting to study social movements from the bottom-up. Thus, I study the Arab Spring movements from such a more intrinsic, bottom-up approach to fully understand why some leaders remained in power (at least until now) while others did not. My theoretical foundation builds on the grievance-opportunity debate and expands it from its common association with civil war context to the concept of (non-violent) social movements. In particular, I theorize that both relative deprivation and opportunity-based mobilization theory should be used in a complementary approach to explain protest participation. Accordingly, I hypothesize that both motivations and opportunities played a determinant role in Arab Spring participation. In order to uncover if motivations and opportunities played a divergent role in impacting regime leadership change versus resilience, I investigate two countries that experienced the ousting of a former ruler (Tunisia and Yemen) vis-à-vis two countries that did not (Jordan and Algeria). I find that perceptions of unequal treatment served as the most consistent *motivation* for Arab Spring participation in all four cases, while being a member of a political party and/or civil organization and using the internet for political purposes are the most prevalent *opportunity* factors in promoting Ar-

[8] For a more comprehensive review on the timeline of the Arab uprisings, see amongst others Al Jazeera, 2013; Al Arabiya, 2012; HIIK, 2014:145-75; Totten, 2014.

ab Spring participation in all four cases. In addition, attending religious gatherings appears to play a role in explaining the discrepancy in regime durability. More frequent attendance at Friday prayers seemed to have contributed to an increased likelihood in Arab Spring participation in countries that experienced regime leadership change (Tunisia and Yemen), while the frequency of such attendance did not significantly relate to protest participation for countries that experienced no leadership change (Algeria and Jordan). Although the results are overall robust, potential limitations include endogeneity bias and lack of external validity.

This thesis is structured as follows. Chapter 2 establishes the theoretical framework for my analysis by reviewing relative deprivation and opportunity-based mobilization theories. Here, I argue that both theories should be used in a complementary way to explain social movements. I establish falsifiable hypotheses for both motivations and opportunities that were likely to have promoted Arab Spring participation. Chapter 3 outlines my methodological approach and research design. This includes a depiction of the data and model, independent and dependent variables, as well as assumptions for my binary logistic regression model. This chapter also reflects on some potential challenges associated with my research design. In Chapter 4, I present and discuss the findings of my statistical analyses, and subsequently conduct various goodness-of-fit tests. Chapter 5 tests and confirms the robustness of the findings from the previous chapter. Chapter 6 concludes with remarks on potential limitations, policy-recommendations, as well as suggestions for future research.

2 Theoretical Framework

This chapter establishes the theoretical framework for my analysis of protest participation in the Arab Spring. First, I briefly highlight why the general field of social movement theories is adequate for analyzing the Arab movements. Second, I review the evolution of relative deprivation theory and establish corresponding hypotheses relating to the Arab Spring. Third, an outline of resource mobilization theory depicts the main criticisms of relative deprivation theory. Here, I establish falsifiable hypotheses as well. Fourth, I address the critique of relative deprivation and explain how it still matters today. Fifth, I justify why I use a complementary approach of motivational elements of relative deprivation theory with opportunity-based parts of resource mobilization theory to explain Arab Spring participation. While both motivations and opportunities are important for explaining protest participation, I argue that these theories do not necessarily contradict but rather complement each other.

2.1 Theorizing the Arab Spring: Why Social Movement Theory?

Why do people protest? There exists a wide range of theories that explain the emergence, developments and outcomes of social movements. Some of the most commonly known of these theories are relative deprivation theory, resource-mobilization theory, political process theory, and new social movement theories.[9]

Social movements originate when a group of people within a community – a group that is usually without much influential power in society – employs unconventional means to promote or resist social change (Monnier, 2010). Therein, social movement implies *collective* action.[10] Tarrow (1998) argues that every society experiences times when social movements are rare and other times when many movements occur, referring to the latter as *waves of protests*. These waves are often the result of various external factors, such as conflict, economic depression, societal crises and other developments (Ibid). In the last half century, transnational protest movements emerged on issues concerning social, economic and political consequences of globalization, such as Greenpeace for example (Zald, 1992).[11]

[9] For a review on social movements: McAdam et al. (1996), Davis et al. (2005), Kirmani (2008), Monnier (2010).

[10] For a comprehensive overview on revolution, collective action and social movements, see among others: Skocpol (1979), McAdam et al. (1996), Giugni et al. (1999), Walker and Smith (2002), Meyer (2004), Goodwin and Jasper (2009), Earle (2011), Blee (2012).

[11] Transnational movements can cut across different lines of actors and regions (state, region and global). See for instance: Smith et al. (1997); Tarrow (2003).

Social movements can be divided into different types. Depending on the kind of *change desired* as well as the *target*, there exist four types of social movements: alternative, redemptive, reformative and revolutionary-transformative (Monnier, 2010). Table 2.1 depicts these types of movements.

Table 2.1: Types of Social Movements

		Type of Change	
Target		***Partial/Limited***	***Radical/Total***
	Individual	Alternative	Redemptive
	Society	Reformative	Revolutionary

Source: Monnier, 2010.

Since the Arab Spring reflected protest movements with desired change in society as a whole, this thesis focuses on reformative and revolutionary-transformative social movements.

Naturally, it is impossible to know *exactly* what another person is thinking. To know with *absolute* certainty the factors that move a person to participate in protest movements is impossible, since one would have to know that person's exact thoughts and perceptions. But while it is – for obvious reasons – ethically and morally infeasible to physically evaluate the minds of protesters, there has been much work done in the area of social psychology that helps us understand the thought processes of individuals (Stekelenburg and Klandermans, 2010). Klandermans (2004:269), for example, focuses on such an approach in explaining why social movements emerge and why people participate in them. He argues that social psychology provides the best answers to the question on why individuals choose to partake in costly social movements (Ibid). While not understanding the motives and perceptions of protest participants with a hundred percent certainty, academic works like these allow us to identify relevant factors that contribute to explaining individuals' participation in social movements.

In order to fully conceptualize and understand participation in the Arab Spring, I analyze the psychological attitudes and perceptions of protest participants through social movement theory. Using social movement theory to interpret collective action in the Arab countries helps to understand the "social, cultural and political rootedness of political advocacy and activism" better (Ben Moussa, 2013:62).

I analyze the factors that encouraged Arabs to participate in the protest movements through a combination of two theories of social movement. The first is relative deprivation theory,

which takes into account people's motivations through feelings, ideas and perceptions. The Arab movements have been argued to be grounded in grievances and frustration, revolving around the lack of dignity and unfair living conditions (Eyadat, 2012). This argument of grievances being the causal determinant is relevant because the mechanisms that are essential for sustaining social movements (e.g. organizational capabilities or a vibrant political sphere) are mostly missing in the Arab world (Ibid).

The second theory is resource mobilization, which relates to the opportunity structures for protest participation. Opportunistic calculations such as participants' cost-benefit analyses of using available resources are argued to play an essential role in coordinating protest participation. For example, new social media, political parties or religious venues allow information to flow more easily, making it easier for the population to overcome collective action problems (Lichbach, 1995; Spier, 2011).

By using a hybrid approach of those two social movement theories, I base my theoretical framework on Klandermans' argument for grievances, resources and opportunities being *complementary* rather than opposing explanations for protest participations. He states that:

> *"Social Movements come into being because people who are aggrieved and have the resources to mobilize seize the political opportunities they perceive.[…] Grievance theory attempts to understand the demand side of political protests; resource mobilization theory the supply side; and opportunity theory the interaction between the resulting social movement activity and its political environment."*
> Klandermans (2004:276,281)

Accordingly, this chapter connects the elements of the motivations caused by grievances (relative deprivation) with the resource-based opportunistic behavior, and establishes corresponding hypotheses for Arabs participating in the protest movements.

2.2 A Review of Relative Deprivation Theory

Relative deprivation (RD) theory belongs to a broader category of interdisciplinary work called social movement theory, which relates to the study of social mobilization.[12] The con-

[12] Relative deprivation theory has received widespread attention in various fields of social sciences, including psychology, economics and sociology. Accordingly, there exists nowadays no unambiguous definition of the theory, as it is "the foundation of multiple theories of social psychology including frustration-aggression theory,

cept of RD has been used to both measure social justice and inequality and conduct research on grievance, social hostility and aggression (Rummel, 1977).

The theory of relative deprivation was mostly developed in the 1960s and 1970s. As the name suggests, RD refers to feelings of deprivation or discontent which relate to a desired point of reference (Flynn; 2011:100). According to RD theorists, the theory can be divided into two forms of feeling relatively deprived: egoistic (or personal) and fraternalistic (or group) relative deprivation (Walker and Smith, 2002:3). While the former refers to feeling deprived as a unique individual as a consequence of intrapersonal or interpersonal social comparisons, the latter relates to feeling deprived as a representative group member which results from intergroup comparisons (Ibid:2-3). This distinction is essential because "fraternalist deprivation uniquely generates agitation for or against structural change" (Ibid:15). This is because fraternalist deprivation includes a normative element relating to reference groups – something that Runciman (1966:34) identifies as "lateral solidarity" or a feeling of kinship with other members of someone's membership group. Without this normative concept, the perceived lack of eligibility or entitlement moves an individual to find personal rather than collective solutions to overcome the state of deprivation. I focus on fraternalistic RD because the feelings of relative deprivation had to be shared among a large group to spur Arab protest participation.

But what exactly is relative deprivation? Flynn (2011:100) argues that "feelings of relative deprivation arise when desires become legitimate expectations and those desires are blocked by society." Therein, the feeling of deprivation must always be associated with an assessment of one person or group *in comparison* to another person or group. Davis (1959) established a limited rational choice model with certain assumptions that explains how citizens experience relative deprivation.[13] He distinguished between an *Ego* system which relates to one's own assessment relative to one's own past or future and an *Alter* system which describes one's own assessment relative to a reference group (Ibid). If a person (ego) is deprived in comparison to a non-deprived person (alter) – and ego is aware of this discrepancy – then the resulting state is called relative deprivation (Ibid:283).

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equity theory, social comparison theory, and reference group theory" (Flynn, 2011:101). For more in-depth information see also Walker and Smith (2002).

[13] The most essential of these assumptions include the fragmentation argument (a society is divided into multiple dichotomous classes, with at least one of these being divided into deprived and non-deprived citizens), the reference group argument (everyone in the society compares with everyone else; constantly over time) and the deprivation argument (the comparisons between different groups can lead to hostile feelings); (Davis, 1959).

Because the feeling of relative deprivation entails social dissatisfaction, RD scholars argue that collective feelings of relative deprivation eventually lead to social movements, as feelings of deprivation over status, wealth or power can push people to attend protest movements and demand social change (Morrison, 1971; Taylor, 2002:14). Dube and Guimond (1986:207) argue that perceptions of intergroup inequality and feelings of group discontent reflect essential causal mechanisms that can lead to social movements. More specifically, they "explicitly acknowledged affect [of fraternal deprivation] when they examined perceptions of inequality as one precursor of group discontent, which then motivates social protest" (Taylor, 2002:18).

The salience of protest movements is often caused by dissatisfaction reinforced through cleavages, such as ethnic, religious, socio-economic and others (Ascher and Mirovitskaya, 2012:169). An increase in the intensity of cleavages is a trigger of transforming these into political unrests, implicating perceptions of changed conditions or expectations (Ibid:169-170). Therein, Ted Gurr (1970:23) states that "relative deprivation theory is the tension that develops from a discrepancy between the 'ought' and the 'is' of collective value satisfaction, and that disposes men to violence." RD theory thus encompasses motivations for actions, as feelings can - but not necessarily must - be transformed into behavioral effects of deprivation (such as joining protest marches, participating in sit-ins or even conducting violent acts).

The initial argument of RD leading to collective action entailed that the deprived citizens acted on emotions rather than rationality, resembling irrational actors or angry mobs, overwhelmed by a collective mentality and perceived as threats to society (Park, 1927; Caren, 2007:1). This perception of irrationality changed with the introduction of the work of Olson (1965), who explored the rational and deliberate choices individuals made before participating in collective action such as protest movements. By building on the works of Olson (1965), Davis (1959) and Davies (1962), Gurr (1970) published the probably best-known work on the theory of relative deprivation in the book "Why Men Rebel." Specifically, Gurr (1970:24) defines "relative deprivation (RD) […] as actors' perception of discrepancy between their value expectations and their value capabilities." Therein, *values* relate to "desired events, objects, and conditions for which men strive" (Ibid:25). While *value expectations* thus relate to the goods and conditions of life that people believe themselves to be rightfully entitled to, *value capabilities* are the respective goods and conditions they think they are capable of attaining and keeping (Ibid:24-28).

The essential part to note is that RD entails an actor's *perception,* which alludes to an individual's state of mind. This is, in my opinion, important because as perceptions are subjective so must be deprivation. It is the *subjective* perception of some kind of exclusion that causes feelings of relative deprivation. This means that something that causes relative deprivation for one person must not necessarily cause relative deprivation for another person. The subjective act of comparison allows individual assessments of what someone perceives to be good or bad. A person is individually assigning values and subjective meaning through thoughts and experiences. Hence, relative deprivation is a person's subjective assessment of a matter.

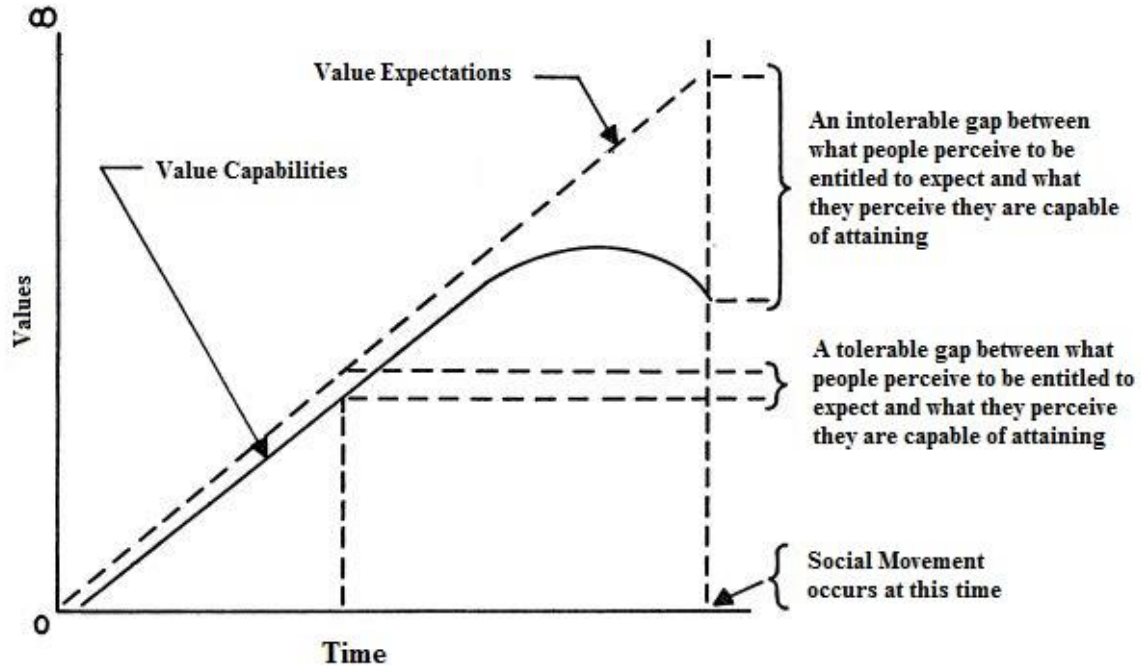
Recalling Gurr's definition above, the state of mind of *being relatively deprived* exists when there is a discrepancy between two things: value expectations and capabilities. Basically, Gurr argues that there is an essential link between what one *thinks* one can justly (as in "one is entitled to") expect to have and what one *thinks* one is capable of attaining. This is not simply a comparison between what one possesses and what one wants to possess. Instead, one considers what one should expect to have by comparing one's past and present conditions with an expected future scenario which builds upon justified perceptions through societal norms. This means that expectations entail a normative element of rightful entitlement, as they must be justifiable in that most citizens should be entitled to receive them as a collectivity, and not reflect individualistic illusions of unrealistic expectations (Taylor, 2002:14). An unrealistic expectation could be, for example, someone wanting a million dollars, while not being justly entitled to that amount of money due to low education, a low-paying job, etc. Contrary to the expectations, the capabilities relate to the values that one is capable of keeping and/or enhancing by one's own skills and surroundings.[14] Gurr (1970) correspondingly links subjective desires with perceived justice and capabilities; arguing that frustration is caused by not attaining justifiable desires, which in turn creates the potential for collective violence or aggression.

In other words, if the gap between capabilities and expectations widens, people become unsatisfied - which can lead to frustration, anger, and resentment. This frustration is thereby a consequence of being incapable of attaining justified desires. When expectations are not met, a person gets frustrated and tries to change the status quo, channeling the anger and frustration towards the people that are to blame, potentially taking action in the form of protest movements. But Gurr (1970:46) contends that since "RD is a psychically uncomfortable condition, men tend over the long run to adjust their value expectations to their value capabilities." Thus,

[14] As one would naturally never expect to get less than what one is (or believes to be) capable of getting, value capabilities are always below (or at least equal to) value expectations. This is also depicted in Figure 2.1.

value capabilities and value expectations have a *normal* relationship of parallel lines. Only if they diverge from each other, creating a gap, does relative deprivation occur. In that, Gurr (Ibid:46-56) distinguishes between three patterns of relative deprivation: decremental, aspirational and progressive deprivation. While all three patterns explain political violence to some extent, the most cited pattern is progressive deprivation which follows the so-called j-curve effect developed by Davies (Ibid:46). The graph below depicts Gurr's progressive pattern.

Figure 2.1: The Progressive Pattern of Relative Deprivation



Source: Modified Graph based on Davies' j-curve effect (Davies, 1962:6)

As Figure 2.1 illustrates, relative deprivation occurs when there is a disparity between expectations and reality. As time passes, the gap between what people expect and what they get suddenly widens, which leads to stress, frustration, and potentially even participation in social movements. This progressive pattern follows Davies' j-curve effect, which relates to the concept of social uprisings being more likely to occur after long-lasting socio-economic growth, followed by a harsh backdrop – and this might be caused, among other factors, by a financial crisis (Davies, 1962:6). In Gurr's (1970:46) words, there "is substantial and simultaneous increase in expectations and decrease in capabilities." The gap between expectations and reality then leads to frustration; and frustration in turn leads to aggression – resembling a frustration-aggression mechanism (Ibid:30). This does not mean that every form of frustration must lead to aggression, but rather indicates its increased likelihood when expectations are not met.

Similar to Gurr, Davies (1973:246-47) also connects deprivation to violence, stating that "violence is always a response to frustration." He further argues in regards to the j-curve effect that "the psychological basis lies in the frustration of basic needs, a frustration induced by the sudden reversal in gratifications" (Ibid:251). The prevalence of this j-curve effect or progressive deprivation over the other patterns of relative deprivation is indeed not that surprising if taking into account that the historical empirical record indicates that "revolutions and rebellions do not appear when people are most deprived or oppressed, but when there has been a period of improving conditions" (Akpeninor, 2012:537).[15]

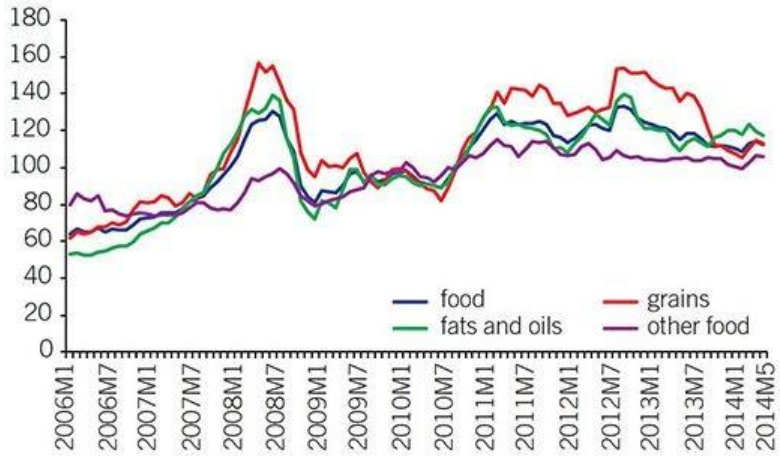
2.2.1 Motivations leading to Arab Spring Participation

Based on the motivational aspects elaborated so far, it is reasonable to establish corresponding falsifiable hypotheses on the actual factors that explain participation in the Arab Spring. The probably most prevalent argument for the occurrence of Arab protests lies in economic pressures caused by changes in the global economy. As illustrated by Figure 2.2, the world recession of the late 2000s led to a rise in global prices such as wheat, corn and rice. This posed a problem to Arab countries because "of the top 20 wheat importers for 2010, almost half are Middle Eastern countries" (Ciezaldo, 2011).[16] Therein, food became a powerful symbol of everything citizens could not have (Ibid).[17] Further, global recession also led to lower work remittances as well as domestic fuel and fiscal crises in the region (el-Meehy, 2014:5). As a result, Ncube and Anyanwu (2012:2) show that the MENA countries have had "gross socio-economic inequality perpetuated by long-entrenched 'elite' in power", fuelling the feelings of resentment of already high food prices. Indeed, as Figure 2.3 indicates, GDP growth in the Arab world has been comparatively high during the last decade. Thus, the governing elite was not necessarily much worse off than in previous years, while the average citizens felt more and more deprived. Thus, factors such as increased food prices, price inflation and overall income inequality are argued to have all played substantial parts in inciting the Arab protests. As hunger and inequality seemed to have motivated protest participation, the first hypothesis follows citizens' perception of unjust living conditions:

[15] Note Figure A.7 in the Appendix: The divergent level of satisfaction with government over time in Yemen and Tunisia vis-à-vis Jordan and Algeria, which is a first sign of discrepancy in outcome (regime change/resilience).
[16] The World Bank estimated, for example, that price of wheat, which the MENA-region heavily imports, doubled between March 2010 and February 2011 (el-Meehy, 2014:5).
[17] For more specific information on food insecurity in the region, see Table A.9 in Appendix.

Hypothesis 1: Citizens who perceived themselves as being treated unequally compared to other citizens were more likely to participate in the protests known as the Arab Spring.

Figure 2.2: Global Food Price Index, 2006-2014[18]



Note: *The Food Price Index weighs export prices of a variety of food commodities around the world in nominal U.S. dollar prices, 2010 = 100. Note that the previous base, 2005 = 100, has now been changed to 2010.*

Source: World Bank, 2014.

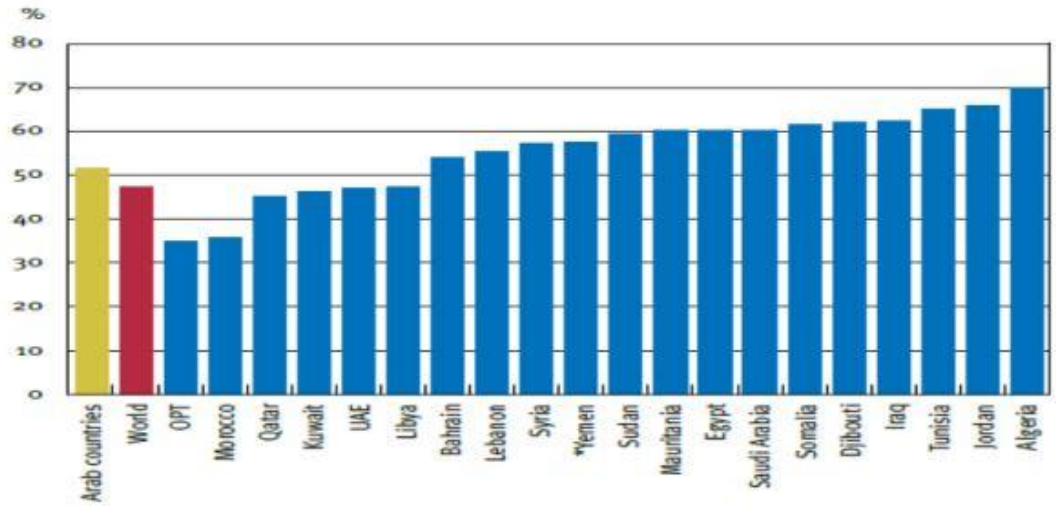
Figure 2.3: GDP growth in the MENA-region, 2000-2010
(by region, percent change, constant prices)

Source: O'Sullivan et al., 2011:10

[18] Figure 2.2 shows the development of food prices from 2006 to 2014. Acknowledging the spike in prices in early 2008, one might wonder why the Arab Spring did not occur back then. Indeed, some countries like Tunisia and Egypt experienced protests in 2007 and 2008 (Ansani and Daniele, 2012:8). While the answer to the question why these protests did not develop into movements as big as in 2010-2011 might be manifold, one part of the explanation could be that the food price increased rather gradually in a positive manner before 2008. Thus, expectations might have been closer to reality, as the overall tendency has already reflected a growing price over some time. In late 2010, however, there is a sharp reversion of prices (especially in grains) after a substantial period of declining prices. Here, citizens might have expected a continuous trend of prices decreasing further (or at least remaining stable), but the drastic return to higher prices in a short period of time increased the gap between expectations and reality too much, signifying a progressive deprivation pattern.

An increase in unemployment usually leads to feelings of dissatisfaction, too. Increased unemployment is often grounded in demographic changes, particularly resulting from growing segments of youth.[19] el-Meehy (2014:5) argues, for example, that although broad segments of society participated in protests, the most dominant segment appeared to be the youth. This might not least be because of the demographics of the MENA-region as on average approximately twenty percent of the population are between 15 and 24 years old (Mulderig, 2013:5). And with just over half of the Arab population being under the age of 25, the changing age structure of the region has created challenges to governments, especially regarding the employment sector and corresponding issues such as the lack of job creation (Mirkin, 2013).

Figure 2.4: Youth Unemployment as Percentage of Total Unemployment (2008-9)



Source: Cordesman, 2011:11

Figure 2.4 indicates that in most Arab countries more than half of the unemployed citizens were young Arab citizens. The empirical trends therein suggest a deepening of relative deprivation due to unemployment among citizens. Attaining middle class status was most often only achieved by working for the government (Springborg, 2011:87). However, the lack of job opportunities in the already bloated public services, as well as rigid labour market structures and social insurance policies led to more and more dissatisfaction among non-employed citizens (el-Meehy, 2014:12). In accordance, Diwan (2012:5) argues that the Arab regimes, often prone to crony capitalism, are "perceived to have generated unacceptable inequalities, directly by supporting the growth of a class of super-rich, and indirectly by being unable to

[19] For a comprehensive literature review on the role of demographic changes in general and the deprived segment of the youth (the "youth bulge") in particular generating political turmoil and instability, see: Choucri, 1973; Huntington, 1996; Urdal, 2004; Goldstone et al. 2012; Ben Moussa, 2013.

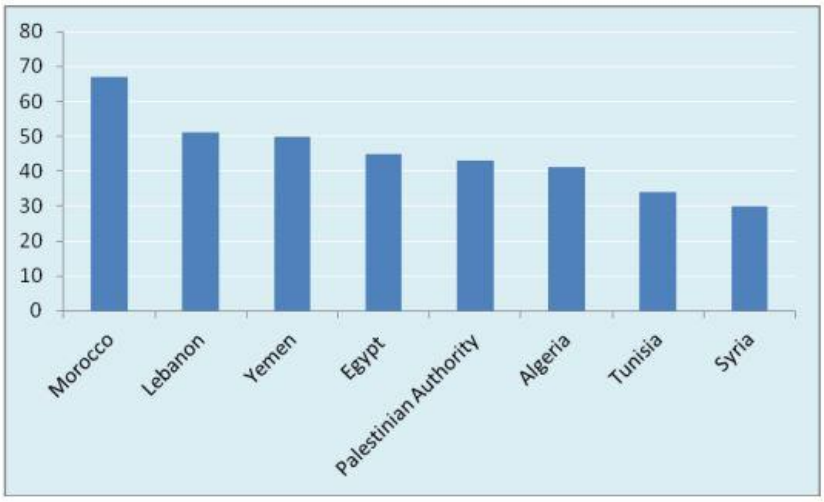
create sufficient good jobs for the newly educated middle class."[20] Further, Mulderig (2013:22) and Noueihed (2012) assert that Arab youth have been prohibited from fully accessing civil society with fair access to quality education, sustainable and adequate employment, and so forth, despite vast cultural and economic development in the region. The feeling of social exclusion in form of being rejected from the labour market facilitated feelings of dissatisfaction, as young Arabs had no opportunity to improve their living conditions. Without a job many struggled to maintain living standards, relying mostly on loans they could not pay back (Abdel-nour, 2012:159). These developments fostered feelings of resentment, which were further enhanced by overall growing economies.[21] Assaad and Roudi-Fahimi (2007:1) argue, for example, that "despite a wealth of oil resources and major improvements in health and education over the past few decades, this region's political, social, and economic systems have not evolved in a way that effectively meets the changing needs of its rapidly growing young population." Thus, the second hypothesis includes an *interaction* term of unemployment and youth.

Hypothesis 2: Citizens who were both unemployed and young (< 25) were more likely to participate in the protests known as the Arab Spring than those who were not.

A related factor to the unemployed youth hypothesis is education. Urdal (2004:4) argues that *educated* people may engage in protest activity and potential violent acts if their expectations of influence in society and access to elite positions are not met. Assaad and Roudi-Fahimi (2007) equally noticed the importance of education, as they contend that increased education raises the expectations and aspirations of young people, therein enhancing frustration if unemployed. As increased education is usually associated with increased employability expectations, these expectations were not met in the MENA-region. With changing demographics and improvements in education, the regional governments did too little to simultaneously provide sufficient and adequate jobs (Ibid.).[22]

[20] Cronyism undermines growth, jobs and competition (The Economist, 2014b).
[21] Indeed, Momami (2013) states that the "Arab Spring started in countries that had economic growth and were leading economic reformers: Tunisia, Egypt, Libya, and even Syria were 'successfully liberalizing' their economies, according to the World Bank, the IMF, and rating agencies."
[22] The governments tried to appease the public by finding solutions to the problem of increased unemployment. el-Meehy (2014:14) argues, for example, that "both Egypt and Tunisia promote[d] Micro-Small and Medium Enterprises (MSME) as a solution to rising unemployment. However, the agencies entrusted with the extension of subsidized credit for small entrepreneurs and the development of this sector of the economy were ineffective."

Figure 2.5: (Estimated) Informal Employment in selected Arab countries
(as percent of total non-agricultural employment, 2000-2007)



Source: O'Sullivan et al., 2011:4

The low official employment rate of young Arabs shown by Figure 2.4 combined with the relative high estimated employment rate in the informal sector depicted by Figure 2.5 indicates that educated Arabs probably looked for alternative ways to improve their conditions, as official employment such as well-paid jobs hardly existed and low-paid jobs were hard to come by. The statement of a Tunisian graduate highlights this job-related dilemma:

> *"If you apply for a low-paid job they don't take you because you have a degree, so you have to work for yourself."* (Noueihed, 2012)

The essential problem in regards to education relates to the argument that the Arab youth is *over*-educated, but not *well*-educated (Mulderig, 2013:13-4; Brookings Institution, 2014). While being educated but not possessing the necessary skills to stay competitive in the rapidly changing global market, the educational achievements are often not internationally recognized – thereby not only diminishing domestic job opportunities but also often inhibiting the educated Arab segment to migrate for work (Adams and Winthrop, 2011). Thus, education appears to have played a role in causing frustration and therein motivating protest participation.

Hypothesis 3: Citizens who attained higher education were more likely to participate in the protests known as the Arab Spring than those who attained less education.

While recognizing the relevance of these socio-economic sources of relative deprivation, I turn now to the political sources. Political grievances based on issues like the suppression of basic freedoms like voting in free and fair elections might play an additional role in explaining the protest movements. For example, being politically deprived can entail the following:

First, a person experiences a period of liberalization with enhanced political rights. Then, that person expects further liberalizing reforms towards more democratization. However, these expectations are not fulfilled. Accordingly, the person feels relatively politically deprived.

The MENA countries did indeed partially liberalize in the decades prior to the Arab Spring (Brumberg, 2002; Lust-Okar, 2003). In order to protect their power, act against various movements or simply attract foreign trade and investment (conditionality of "good governance"), regional leaders established liberal mechanisms in their states, such as elections. However, the states remained authoritarian and the liberalization efforts appeared to be rather façade than reality, as liberal elements such as elections were mostly non-democratic and highly corrupt (Ibid). These regimes are referred to *illiberal* democracies, as they represent "democratically" elected regimes that deprive their citizens of basic rights and freedoms (Zakaria, 1997).[23] Indeed, Banik (2010:110) argues that elections "held in 2007 in Egypt, Jordan, Algeria, Syria, Morocco, Oman, Qatar and Saudi Arabia appear […] to have largely benefited authoritarian rulers who have used the event of organising an election to strengthen their claims of legitimacy." In such, electoral fraud and intimidation are no rarity in the region (Ibid). Accordingly, it is reasonable to assume that Arab Spring participation involved relative *political* deprivation as well. Egypt's original protest movement on January 25th, 2011 entailed a political rationale, for instance, namely shaming the brutal police apparatus by showing slogans like "Freedom and human dignity" or "We are all Khaled Saeed" (el-Meehy, 2014:14-5).[24] In Tunisia, political demands transformed after economic ones, as violent governmental actions against citizens eventually turned into movements demanding more civil rights and the resignation of Ben Ali (Ibid). Therein, political and socio-economic forms of relative deprivation appear to have complemented and potentially even reinforced each other. Hence, relative deprivation as a cause of *political* grievances facilitates another hypothesis.

Hypothesis 4: Citizens who perceived their *freedom of expression* to be guaranteed were less likely to participate in protests known as the Arab Spring than those who did not.

[23] See also Beetham (1999) who argues that substantial democracy requires both negative freedom (absence of external interference in personal life) as well as positive freedom (state-generated opportunities to provide better conditions for citizens to enjoy their freedom).
[24] The brutal police crackdown leading to Khaled Saeed's death arguably sparked the protests in Egypt.

2.3 Resource Mobilization Theory and Opportunity Structures

As the name suggests, resource mobilization theory focuses on resources, with the outcome of social movements being mainly dependent on the capacity to mobilize and efficiently manage resources (Oberschall, 1973). In that context, resources can relate to finances, equipment, networks, coordination, alliances, and so forth (Ibid). Resource mobilization theory is usually regarded as criticism to relative deprivation theory.

Following the resource mobilization argument, McCarthy and Zald (1977) argue that citizen's support for a social movement does not solely depend on oppression and feelings of resentment or deprivation, but that social movements require particular resources, such as connections to other institutions, parties or movements, and potential external links. Tilly (1978) expanded on these thoughts, arguing that collective violence is the result of certain *opportunity structures* which enhance group competition for power in a society. By introducing the rational element of a cost-benefit analysis, citizens thereby – instead of acting on emotion-based grievances – consciously weigh their chances of collective action being successful or not (Ibid; Tarrow, 1998). Thus, resource mobilization emphasizes the role of the reactions by the state and its institutions, which arguably play a greater part in the occurrence of social movements than feelings of relative deprivation. Collective action is argued to be more of a conscious choice to improve one's conditions for particular reasons (e.g. for higher causes in the name of "God", for personal glory or friendship, or as a cause of greed), instead of the formerly assumed more emotional (and often irrational) response of aggression and frustration.

Collier and Hoeffler (2004) argue for just such a conscious decision-making process in civil war onset. They contend that citizens join rebellions because of greed-based calculations rather than grievances. This argument has led to vast academic attention during the last decade, igniting the so-called greed-grievance debate.[25] However, instead of explaining social movements, this debate focuses mostly on the causes of civil war.

Nevertheless, I argue that the debate on greed versus grievances as causes of civil war onset can be transferred to similar thoughts on causes of social movements. After all, Gurr's frustration-aggression mechanism reflects very much the grievance argument, while the greed argument appears to resemble much of the rational choice element of cost-benefit calculations highlighted by resource mobilization theory.

[25] For a review on the greed-grievance debate, see among others: Fearon and Laitin (2003), Murshed and Tadjoeddin (2009), Cederman et al. (2013).

The core of greed theory consists of the so-called *collective action problem* which grievance-based explanations appear to ignore (Olson, 1965). Collier (1999) specified this collective action problem by dividing it into the free-rider problem, the coordination problem, and the time-consistency problem – each constituting essential parts in the explanation of why people rebel and more importantly, why they so often fail to rebel.[26]

Critics have also pointed to the *indirect* link between relative deprivation and social movements. Morrison (1971), for example, argues that while absolute deprivation can certainly be associated with feelings of dissatisfaction and the consequent potential for action, feelings of being relatively deprived *can*, but *not must*, cause social movements and collective identity. Indeed, the question arises on why so few revolutions occurred throughout history despite the fact that a lot of people must have felt relatively deprived (Kornblum, 2012:218). Cases of inaction allow for easy falsification of the theory of relative deprivation causing collective action against the state. This empirical evidence is probably the biggest criticism against relative deprivation theory.

The mixed empirical results also put Gurr's theory of the frustration-aggression mechanism explaining collective violence into question. Thereby, frustration can cause aggression but can equally likely lead to non-aggression. Indeed, Akpeninor (2012:536) underlines this possibility of non-aggressive behavior, stating that "a frustrated person may regress; he may withdraw from human interaction associated with the frustration, absorb it into a higher goal, or try to cope with it."

2.3.1 Opportunities facilitating Arab Spring Participation

These opportunity-based structures allow us to establish corresponding falsifiable hypotheses of factors that arguably facilitated participation in the Arab Spring. One of these relates to political affinity. Naturally, a person that is more affiliated with politics and part of a political party is more likely to be interested in political affairs. Politically affiliated citizens are more likely to critically assess their governance, independent of supporting or opposing it. A highly

[26] The free-rider (a), coordination (b), and time-consistency (c) problems refer to the lack of incentive for citizens to join a rebellion, mostly because of the lack of economic rewards, thereby (a) letting others fight instead of risking one's own life, (b) the need of recruiting sufficient rebels to achieve one's cause which is often unlikely due to the high risk of death (it becomes easier the more people participate in an uprising, but the first few hundred recruits are the most difficult to convince), and (c) fighting and risking one's life before justice (e.g. overthrown of government) is achieved. Collier thereby argues that economic rewards are more likely to overcome these problems as people have a material incentive to join a rebellion other than grievance or hatred.
For more information, see also Cederman et al. (2010).

traditional and religious person could, for example, support the rule of an authoritarian state that enacts strict governance through Shari'a law. If a party exists that supports this form of governance, this person will most likely join that party. On the other hand, a person that is more critical of Shari'a law enforcement and supports more democratic liberalization in accordance to the governance of Western states might join a political party to support those views (if such a party exists/is allowed). Hence, a politically affiliated person will have a lot to win and lose when dealing with political issues. Politically interested persons are then more likely to participate in social movements in order to support their political preferences. Furthermore, political parties or other civic organizations establish essential links for citizens to connect, exchange their views, and actively participate in civil society. These measures include various resources, such as the provision of venues for people to meet, interact and potentially plan rallies and demonstrations. Thus, the political platforms enable citizens to overcome potential collective action problems and subsequently increase the likelihood of protest participation. The following hypothesis reflects this assumption.

Hypothesis 5: Citizens who were a member of a political party and/or civil organizations were more likely to participate in protests known as the Arab Spring than those who were not.

New social media provides a further explanation on how Arabs shared their grievances. Internet access through mobile devices and worldwide television broadcast has connected the world's urban citizens with those of even very remote areas, providing instant communication to any number of people (Frieden, 2007:396; Assaad and Roudi-Fahimi, 2007:4). Unsurprisingly, scholars have often stated the significance of new social media, especially Facebook, in organizing Arab citizens' protest movements.[27] Social media is argued to have created a platform for the rapid formation of mass protests, creating "a cybernetic ecology of civil society [… that allows] coordinating the masses and neutralizing governments' narratives" (Chorev, 2012:138). However, new social media remains an under-researched topic in the political sphere in general and largely ignored by academic work on collective action in the context of Muslim/Arab societies in particular (Ben Moussa, 2013:48-9). Accordingly, there exists no clear consensus on the actual impact social media had on the regional developments.

[27] For various contributions, see Price, 2008; Joffé, 2011; Khondker, 2011; Comunello and Anzera, 2012; Khan, 2012; Wolfsfeld et al., 2013.

On the one side, the Egyptian uprising was perceived as a prime example of how social media can mobilize collective action among vast amounts of citizens, pushing them to protest for their rights and demands (Lynch, 2011; Ben Moussa, 2013; Pew Research Center, 2013a).[28] Tarzi (2011:21) identified social media, and especially Facebook, as "a game changer in Egypt primarily because it bridged the gap between social classes." New social media has experienced exponential growth over the last decade (ASMR, 2012, Chorev, 2012:121). While scholars admit social media being relevant, it is arguably less of a determinant factor but rather an *accelerator* to general structural conditions (Khan, 2012; Chorev, 2012:120; Al-Momani, 2011:159). Moreover, governments use the internet as well, mostly to undermine protests movements by banning and blocking internet pages or spreading false news.[29] Jones (2013) argues, for example, that the Bahraini regime used social media tactics like naming and shaming, offline intelligence gathering and passive observation to suppress both online and offline dissent.

On the other side, social media's connection to protests is denied altogether (Aljabre, 2013). For example, Aday et al. (2013:1) argue that "new media [… like Twitter] did not appear to play a significant role in either in-country collective action or regional diffusion." Samin (2012:3) contends that the underlying dynamics of a society rather than internet explain the emergence and persistence of opposition movements. He highlights that the "complicated conflicts in Syria, Bahrain, Yemen, and Libya have demonstrated [that] underlying social and political dynamics continue to dictate political outcomes, with technology playing a more complex and less determinant role than is conventionally ascribed to it" (Ibid:3).

I argue that new social media contributed essentially to the movements. New technology promotes social movements through three mechanisms, namely reduction of participation costs, promotion of collective identity, and creation of a community (Garrett, 2006). New social media has not only given Arab citizens a channel to make their voice heard – which strict government regulations and surveillance otherwise inhibits – but also enabled them to evade repressive governments' crackdowns caused by proactive demands for more freedoms and rights. By creating an alternative political space for public discussion online which remained "one step beyond that of law enforcement capabilities", Arab citizens were now able

[28] Frangonikolopoulus (2012:17) states that "the uprisings were just the boiling point reached after several years of increasing dissent and efforts to change from below, both virtual (through the mushrooming of the blogosphere and digital activism) and real (through social non-movements)."

[29] Nevertheless, "net-savvy Internet users used proxies and mirror sites and worked with fellow activists abroad to bypass state censorship" (Noueihed and Warren, 2012:45).

to connect both on a personal as well as on a diffuse level at the same time (Wade, 2003:112). Unlike old media, internet is more anonymous and therein safer to use. New social media helped citizens to become connected and organized by a number of skillful activists who used the platforms to foster subaltern and oppositional politics, support linkages between different political groups, and thus promote mass rallies (Howard et al., 2011; Ben Moussa, 2013:51). It connected people from different segments of society to share their feelings of frustration and dissatisfaction through a collective identity. The most prevalent new media platforms in the region are Facebook, Twitter and Youtube. I use the former because of data availability and representativeness (see for instance Figures A.1 and A.2 in the Appendix). Also, Ben Moussa (2013:61) stated that "prior to the eruption of street protests and popular uprisings in Tunisia and Egypt, […] social media, *mainly Facebook*, were the main arena of political dissent and mobilization" (my emphasis). Thus, new social media provides another hypothesis.

Hypothesis 6: Citizens who were a member of or a participant in a Facebook page/used internet for political matters were more likely to participate in protests known as the Arab Spring than those who were/did not.

Finally, Kirmani (2008:26-7) argues that scholars have often been neglecting the role of another relevant factor in explaining social movements: religion. In a recent study, Hoffman and Jamal (2014) addressed the issue of religion in the Arab social movements. They used Arab Barometer wave 2 data on Tunisia and Egypt to investigate if motivational or opportunity-based explanations are more likely to promote participation (Ibid). The conclusion was that personal piety, namely Qur'an reading, rather than mosque attendance is associated with greater political activism, such as protest participation (Ibid).[30] I analyze if Hoffman and Jamal's findings hold up with the new data (wave 3) that includes a more direct question on Arab Spring participation. Thus, the following two hypotheses are included.

Hypothesis 7: Citizens who attended religious meetings (such as Friday Prayers) more frequently were more likely to participate in the protests known as the Arab Spring than those who attended them less often.

[30] Qur'an reading increased motivation for protest but did not provide the resources for easier access to protest participation, thus putting the relative deprivation above a resource mobilization explanation. (Hoffman and Jamal, 2014:604).

Hypothesis 8: Citizens who were more religious (read the Qur'an more frequently) were more likely to participate in the protests known as the Arab Spring than those who were less religious.

2.4 Addressing the Criticism: Why RD still matters today

While the criticisms of RD carry some validity, their argumentative strength fades when being analyzed more closely. This section takes a closer look at the critique and highlights why relative deprivation theory is still relevant in explaining social movements today.

First, let us consider the argument regarding the lack of empirical evidence, namely those cases that *should have* promoted social movements due to relative deprivation, but did not. While this critique carries some validity, I argue that most of the work on relative deprivation has been imperfectly researched, predominantly investigating data with economic focus and consequently neglecting political and social aspects. Some of the most prevalent measures used in empirical analyses of relative deprivation include GDP/capita, household income, overall living costs and employment.[31] A lot of work on RD has thereby neglected social and political factors which can play a critical role in causing relative deprivation. But even more important to notice is that the economic variables that have been used appear to measure *absolute* and *not relative* deprivation. The economic variables accounted for aggregate facts of, for example, household income while not directly investigating the individual perceptions of economic hardship.[32] Instead of identifying the actual perceptions and assessments of citizens, those absolute measures identify simply aggregate conditions individuals are situated in. Thus, the traditional measurements appear to be flawed, since relative deprivation is neither a necessary nor sufficient condition for absolute deprivation. This is because an absolutely deprived person *can, but not must,* also be a relatively deprived person, and vice versa. This does not mean that relative and absolute deprivation exclude each other by necessity: a relatively deprived person can also be an absolutely deprived person. But the person can also only be relatively deprived. Miller, Bolce and Halligan (1977:981) summarized this flaw by stating that scholars tend to "test a theory based on individual perceptions with aggregate and objective data." Thus, most of the empirical work on relative deprivation has been measured at least to some extent imperfectly. Since feelings of (dis-)satisfaction depend rather on *relative*

[31] See for instance: Gurr and Duvall (1973), Panning (1983), Muller and Weede (1994), Crosby (1979).
[32] Notice that the most influential works addressing grievance vis-à-vis greed/opportunity theory have been developed and tested with macro data level as well; e.g. Collier and Hoeffler (2004), Fearon and Laitin (2003).

than absolute criteria, the criticism regarding the lack of empirical evidence (vast amounts of relatively deprived citizens and yet disproportional few protest occurrences) seems mitigated (Alain, 1985).

Concerning the greed *over* grievance critique, the argument that grievances assume a substantial part in explaining civil war (or social movement) onset has again received scholarly attention in recent years. Academic works by scholars such as Smith et al. (2011) and Cederman et al. (2013) have challenged the premature rejection of grievance-based explanations in explaining social movements. They argue that proper RD measurement, appropriate conceptualization and the inclusion of theoretically relevant situational appraisal can show actual causal effects (Ibid). More specifically relating to the Arab Spring, Doorn (2013) argues, for example, that "while grievances seemed to play an important role as a motivation in Libya, 'greed' does not provide a convincing explanation." This is not to say that we should dismiss the opportunity-based explanations for collective action entirely, as these help explain the occurrence and maintenance of social movements partly too. My emphasis here is, however, that grievances play at least an equally important role in explaining the protest participation.

If we then allow grievance theory to assume an explanatory role in protest participation again, there is no need to equally dismiss the rational choice element of actors performing cost-benefit analyses in order to overcome collective action problems. Unlike the dependent variable of civil war used by Collier, my dependent variable is measuring protest participation. Thereby, I do not discriminate between violent and non-violent action, as participation in movements can also be (and mostly is) non-violent. This drastically reduces the problem of Collier's collective action dilemma which is built upon the assumption that participating in the violent act of rebellion is more costly than abstaining. After all, protest participation does not entail violence or the threat of death by necessity, although it might still be costly.

2.5 A Complementary Approach: RD *and* Opportunities

Based on the discussion above, I argue that both RD and opportunity structures play an essential part in explaining participation in the Arab Spring. This is because motivations and opportunities complement rather than contradict each other. The feeling of relative deprivation functions as a motivational mechanism to spur action through rational choice behavior of opportunistic thoughts. This means that although Arabs felt relatively deprived, they still acted upon rational thoughts of weighing their costs and benefits of participating in the protests.

2.5.1 Establishing a RD framework for Arab Spring participation

Building on the last sections, my theoretical framework of relative deprivation assumes the underlying foundations of Gurr's and Runciman's concepts. Accordingly, I define a person as being relatively deprived if the following conditions are fulfilled.

First, a person must perceive herself as being treated unequal in comparison to another group.[33] But to be relatively deprived means not only that people perceive differences, but also that they regard these differences as unfair and resentful. Furthermore, there has to exist a psychological connection with an ingroup (Wright and Tropp, 2002:228). This ingroup identification serves as basis for feelings of collective relative deprivation, since we have a propensity to make group-level comparisons with dominant outgroups (Ibid:228). If this comparison leads to the perception of an *unfair* discrepancy, we will feel relatively deprived. This *unfair* or *unjust* element usually implies the "assessment of, and subsequent rejection of, the possibility for individual upward mobility […and] the assessment of the ingroup's low status position as illegitimate and controllable" (Ibid:228). Hence, feelings of collective relative deprivation arise, which spur collective actions. Feelings of relative deprivation do not necessarily trigger frustration but at least some kind of dissatisfaction. This does not exclude manipulation of minds as in "wrongly" perceiving oneself as being deprived.[34] The essential part is that a person *perceives* herself as being deprived, independent of actually being deprived or not.

Second, I focus on *upward* comparisons. As everyone compares with everyone else constantly, presidents and monarchs also compare themselves with the average citizen in a downward comparison.[35] Scholars have argued for the importance of the latter, as "Crosby (1984), Kahneman (1992), and Williams (1975) have suggested that losses may be more psychologically poignant than blocked gains, [… or in other words] that losing ground is more painful than failure to gain" (Taylor, 2002:17,38). While acknowledging this argument and being aware of both directions of comparisons, this thesis focuses on upward comparison only. This is because changes in social order depend primarily on collective actions of disadvantaged groups (Wright and Tropp, 2002:228). Also, the upward comparison reflects my research question itself.

[33] For gender-neutral language I use the feminine form (she/her/herself) in this essay.

[34] The influence of another person can have great impact on one's understandings and perceptions. In public meetings, the internet, and other platforms that serve for social interactions, some proficient narrators can use their skills to rally up persons for their cause; motivating people that might not feel actually deprived otherwise. The causes leading to feelings of relative deprivation will not be addressed here. I simply address the question on whether a person was feeling relatively deprived or not – for whatever reasons that might be.

[35] While the application of the relative deprivation construct to upward comparisons is more common, various authors have treated dominant group reactions to encroachment by a subordinate group as relative deprivation (Taylor, 2002:16-7).

Third, there are different ways of comparisons for a person.

(a) She can compare herself with another person or group.

According to the argumentation in the first condition, this comparison is made with a group rather than a single person. This group can be geographically close or far from her. For example, she can feel relatively deprived in comparison to her neighbors or citizens in another state. But she can also feel relatively deprived compared to citizens in another country. Inventions like the internet make such cross-border comparison very easy nowadays, as ideas and values travel from one country to another in an instant. Various channels like Twitter, Facebook, etc. allow Arab citizens to compare themselves with foreign citizens.

(b) She can compare herself with herself.

This form of self-reference is a comparison of a previous or anticipated future situation with her current self. Krahn and Harrison (1992) argue, for example, that "self-referenced relative deprivation influences economic beliefs, political attitudes, and voting behavior and ultimately can influence and lead to social action" (Flynn:108). However, I argue that self-referenced relative deprivation only has a limited impact on social action. While self-referencing is a subconscious and constant process, the element of "justified" is rather elusive in a comparison with oneself. For example, one is more easily ready to forgive one's past self for not doing something than forgiving another group in society for the same lack of action. The same applies for utopian comparisons of a future self that oneself is not likely to achieve, thus contributing little justification for not achieving it. Hence, it is rather unlikely that someone partakes in *collective* action due to feeling relatively deprived compared to a past or future self. Accordingly, it is the group comparisons of section (a) that I focus on.

Fourth, I include all three sources of relative deprivation, namely political, economic and social forms of RD. In doing so, I move away from the disproportionately extensive use of economic factors explaining social movements. el-Meehy (2014:4) argues, for example, that "economic grievances were not always the primary driving dynamic of protests, [… as] the cases of Bahrain and Egypt exhibit higher influence of political grievances in triggering collective action at the initial stages." While I argue that any of the sources can lead to feelings of relative deprivation causing social action, I also assume that there is a reciprocal element inherent in the potentially interwoven relationship of two or more sources of relative deprivation (although I will not test this theory). For example, if a person is both economically and politically (and maybe even socially) relatively deprived in comparison to the same group at the same point of time, then that feeling of being deprived will be stronger and cause more dissatisfaction than a feeling that was based on only one source of relative deprivation.

Fifth, I associate relative deprivation mainly with the pattern of progressive deprivation. The reason for this decision lies in the empirical fact that demand for social change is most likely to appear after a distinct period of improving conditions (Akpeninor, 2012:537). Noueihed and Warren (2012:57) highlight that the Arab Spring came after a decade of activism. Protests and violent actions against repressive regimes have been taking place in the Arab world at least a decade before the Arab Spring started and the everyday struggles of citizens even continue today (Ottaway and Hamzawy, 2011; Frangonikolopoulus, 2012:17). This continuous and unchanging trend of protest activity suggests that only the widened gap between value expectations and capabilities in form of the progressive pattern can reasonably explain why the Arab Spring occurred in late 2010 and not earlier.

2.5.2 Connecting Opportunity Structures with RD

In addition to motivations, opportunities may also play a part in explaining protest participation. Certain opportunity structures enable citizens to overcome potential collective action problems. For instance, new social media like Facebook can help citizens to overcome the coordination problem, such as being aware of low numbers of members participating in protests. A pro-democratic Facebook group with several thousand members can show potential participants that their grievances are shared among many others, making them aware of their large numbers. Hence, collective action problems are mitigated as costs and fears of participation decrease significantly because Arabs communicate information and transfer skills more efficiently. While relative deprivation plays an important part in identifying the motivations that lead to protest participation, these opportunistic arguments complement the former by highlighting the channels through which motivations become coordinated and executed.

The choice of making use of specific opportunities underlies a rational decision-making process. Touraine (2004:437) argues that rational choices are made consciously and that social movements are not only based on political and economic demands, but also socio-cultural parts like knowledge, recognition, a model of morality and so forth. Touraine (Ibid) therein asserts that this conscious thinking involves a quest for identity and social coherence, making collective action both interpretative (subjective assessment) and integrative (shared objectives).

We conduct cost-benefit calculations mostly when we are not relatively deprived because, as Gurr (1970) argues, the feeling of relative deprivation is an abnormality. However, once such

feelings of relative deprivation arise, we make calculations based on the influence of those feelings. To feel relatively deprived entails a feeling of dissatisfaction that one wants to change. What calculations does one make if one feels relatively deprived? Naturally, to change the unpleasant status quo of being relatively deprived, one would seek the easiest (least costly) way possible. If a legal opportunity exists, one is likely to prefer it over illegal alternatives – as the latter would mean a high risk of imprisonment or other punishment. Thus, one employs legal means until these prove to be inefficient. As citizens continuously evolve over time and reconsider the outcomes of their past actions, they rationally think of new ways and means to achieve their goals. For example, a relatively deprived person, who is incapable of changing her status quo through legal means, might learn that illegal means helped to overcome relative deprivation for another person in a neighboring country. Such illegal means could involve protest movements, which are usually banned (or strictly supervised) in authoritarian states. By identifying with the cross-border relatively deprived person or group, she might be more willing to join a protest in her own country despite the risk of punishment. This might explain the apparent contagion effect of the Arab uprisings which relates to protests dispersing from original protests in Tunisia to other countries in the Arab world. Arabs might have learned through various channels like television or internet platforms that protest movements in Tunisia "worked", and correspondingly took to the streets in their country.

2.6 Conclusion

In summary, I illustrated how motivational as well as behavioural accounts of the Arab Spring entail relevant information about who the protesters actually were and how they were able to protest. Perceptions of unequal treatment and political oppression, as well as youth unemployment, the level of educational achievement, and religiousness (frequency in Qur'an reading) might all serve as *motivations* for Arab Spring participation. Public interaction at religious venues, the use of social media, and membership in political or civil organizations provide citizens with the corresponding *opportunities* to share their feelings of deprivation and act upon them. Both motivations and opportunities ultimately complement each other in explaining what moves individuals to participate in protest movements. As Hoffman and Jamal (2014:605) stated, this "systematic analysis of individual-level political behaviour is a crucial step towards improving our understandings of the recent Arab uprisings." The Table 2.2 below provides an overview of the established hypotheses in this chapter.

Table 2.2: Hypotheses

Motivations	
Hypothesis 1	Citizens who perceived to be treated unequally compared to other citizens were more likely to participate in the protests known as the Arab Spring.
Hypothesis 2	Citizens who were both unemployed and young were more likely to participate in the protests known as the Arab Spring than those who were not.
Hypothesis 3	Citizens who attained higher education were more likely to participate in the protests known as the Arab Spring than those who attained less education.
Hypothesis 4	Citizens who perceived their freedom of expression to be guaranteed were less likely to participate in protests known as the Arab Spring than those who did not.
Hypothesis 8	Citizens who were more religious (read Qur'an frequently) were more likely to participate in the protests known as the Arab Spring than those who were less religious.
Opportunities	
Hypothesis 5	Citizens who were a member of a political party and/or civil organizations were more likely to participate in protests known as the Arab Spring than those who were not.
Hypothesis 6	Citizens who were a member of or a participant in a Facebook page/used internet for political matters were more likely to participate in protests known as the Arab Spring than those who were/did not.
Hypothesis 7	Citizens who attended religious meetings (e.g. Friday Prayers) more frequently were more likely to participate in the protests known as the Arab Spring than those who attended them less often.

3 Data and Methods

This chapter outlines the data, methodology and potential shortcomings for testing the proposed hypotheses. First, I present the data and explain the reasoning for my case selection. Second, I depict potential challenges associated with individual-level, survey data as well as other, more general problems like the lack of availability of data, for example. Third, I outline the operationalization of my dependent and independent variables, respectively. Here I also depict control variables that I include to address potential confounding factors. Last but not least, I explain the reasons for employing a binary logistic regression model for my analysis.

3.1 Data and Cases

To understand how motivations and opportunities led to a mobilization of Arabs participating in the protest movements, I analyze survey data from four Arab countries, namely Yemen, Jordan, Tunisia and Algeria. The data derives from the second and third waves of the Arab Barometer survey.[36] The Arab Barometer (AB) is a regional barometer of Arab countries with the objective to produce scientifically reliable data on the politically-relevant attitudes of ordinary citizens (Arab Barometer, 2014). More specifically, the Arab Barometer is conducted in national survey waves that seek "to measure and track over time citizen attitudes, values, and behavior patterns relating to pluralism, freedoms, tolerance and equal opportunity; social and inter-personal trust; social, religious and political identities; conceptions of governance and an understanding of democracy; and civic engagement and political participation" (Ibid). The latest wave was released in October 2014. Table 3.1 illustrates the countries that were included in the different waves of the Arab Barometer.

3.1.1 Case Selection

My case selection is based on choosing diverging cases to account for external validity and generalizability. This is because I do not only want to explain Arab protest movements and outcomes in the selected countries, but rather for the entire Arab world; potentially even generalizing the causal inferences that I will establish here to social movements in general. The four countries of Algeria, Jordan, Tunisia and Yemen were chosen for various reasons, both theoretical and practical. The first and most obvious reason regards data availability. As I em-

[36] The data and codebooks can be retrieved here: http://www.arabbarometer.org/instruments-and-data-files

ploy data from both wave 2 and wave 3, I have to choose countries that were surveyed in both waves. Considering Table 3.1, national surveys were conducted in Algeria, Jordan and Yemen in all three waves, and for Tunisia in all waves but the first. Kuwait and Morocco do not appear in wave 2, and Saudi Arabia appears only in wave 2, ruling these countries out altogether. On the other hand, available countries that I exclude are Lebanon and Palestine which appear in all three waves, as well as Iraq, Sudan, and Egypt which appear in the last two waves. The unique status of Iraq (2003 war and its aftermath) and Palestine (ongoing Palestine-Israeli conflict) suggest that results for these cases might be quite biased by external factors. Sudan is arguably another unique case, with the secession of South Sudan in 2011 having impacted citizens' perceptions uniquely. Similarly, Lebanon's representativeness vis-à-vis the MENA region is highly contested, as Lebanon's relatively weak state apparatus makes it an exception in the region (Stel, 2013:7). Finally, I exclude Egypt for its dominant role in already existent literature regarding explaining the Arab Spring. Also, Egypt is something like a *hybrid* case in regards to the "outcome" of the Arab Spring. In general, some leaders were removed from power and replaced, while others were not. In Egypt, however, the newly democratically elected leader, Mohamed Morsi, was replaced by a coup. Including Egypt would thereby increase the variation on the binary outcome of comparing leaders remaining in power or not.

Table 3.1: The Arab Barometer Waves – Countries Surveyed

Wave I (2006-2008)	**Wave II (2010-2011)**	**Wave III (2012-2014)**
Algeria	Algeria	Algeria
Palestine	Egypt	Egypt
Jordan	Iraq	Iraq
Kuwait	Jordan	Jordan
Morocco	Lebanon	Kuwait
Lebanon	Palestine	Lebanon
Yemen	Saudi Arabia	Libya
	Sudan	Morocco
	Tunisia	Palestine
	Yemen	Sudan
		Tunisia
		Yemen

Source: Arab Barometer, 2014

A second reason for my case selection relates more specifically to the different "outcomes" caused by the Arab Spring movements. Two of the countries experienced regime change (leaders removed from power): Tunisia and Yemen; while the leaders of the other two countries, Jordan and Algeria, remained in power. This is important because I do not simply want to investigate the motivations and opportunities for protest participation, but also attempt to analyze if diverging means and attitudes of protest participants lead to different outcomes in social movements (e.g. regime change versus remaining in power). The third reason regards geographical proximity. Jordan and Algeria are geographically very close positioned to the two countries that gained the earliest momentum of the Arab Spring, Tunisia and Egypt. With the contagion effect discussed above, one could have expected these two countries, if any, to follow suit. Especially for Jordan, with the additional burden of vast amounts of Syrian and Palestinian refugees, one could have assumed that the demand for change could have been greater. Finally, in order to mitigate potential bias in the results due to the factor of monarchal exceptionalism (Jordan) – since all overthrown countries were presidential regimes – it makes sense to include another presidential country, namely Algeria, which did not experience regime change.

3.1.2 Case-specific Data Information

All national surveys of the Arab Barometer represent national representative samples of adults 18 years or older. All interviews were distributed proportional to population size. These were conducted by face-to-face interviews in Arabic, and the sampling employed included stratification and clustering. All samples were stratified by governorates, districts, or provinces as well as urban-rural. Within each sector, blocks were randomly selected and used as primary sampling units. Within each block, households were randomly selected in clusters of 10. All cases include a weighting method for the probability of selection in order to produce nationally representative results.[37]

The survey in *Algeria* was administered from March 13th until April 6th of 2013. A total of 810 respondents were interviewed in urban areas compared with 410 in rural areas. Accordingly, the sample size amounts to 1,220. The survey in *Jordan* was administered from December 27th, 2012 until January 6th, 2013. A total of 1,365 respondents were interviewed in urban areas and 430 in rural areas. Accordingly, the sample size amounts to 1,795. The *Tuni-*

[37] For more detailed information, consult the codebook's technical information (Arab Barometer, 2014).

sian survey was administered from February 3rd to February 25th, 2013. Within each household, individuals were selected randomly using a Kish table informed by quotas for gender and age. Thus, an additional weight for post-stratification weighted by age and gender was introduced. In total, 780 respondents were interviewed in urban areas and 419 in rural areas. Accordingly, the sample size amounts to 1,199. The survey in *Yemen* was administered from November 2nd to December 4th, 2013. A total of 410 respondents were interviewed in urban areas and 790 in rural areas. Accordingly, the sample size amounts to 1,200. An additional weighting method regarding post-stratification weighted for age, gender and education.

3.2 Data-related Challenges

Since my data is based on a complex sampling design, using both cluster sampling and stratification, all regression models in this thesis use weights (probability of selection and potential post-stratification weight) to account for the sampling design (Daniel, 2012:134). This should adjust for potential biases in the random sampling methods and thereby increase the internal validity of causal inferences (*correctness* of the causal relationships).

Some of the most common problems with survey techniques relate to non-response and social desirability bias (Furnham, 1986). Non-response is always an issue, as a specific part of the population (e.g. single, middle aged working class) might be less respondent and thereby underrepresented in a study. As representativity is not necessarily improved by increasing the response rate further, this challenge can be adjusted by weighting for probability of selection, as is done here.

The problem of social desirability bias is especially an issue in face-to-face interviews and can impact validity and reliability (Ibid). It refers to the idea that respondents answer in a way that pleases the interviewer, providing answers the latter wants to hear or that make the respondent *look good*. While it is impossible to completely rule out social desirability bias, the settings of the interviews (e.g. being in Arabic, administered by local citizens, etc.) and the large amount of respondents should have mitigated this potential bias.

Other challenges with valid and reliable survey responses include no-opinion response as in satisficing, non-differentiation, acquiescence, and rank-order effects (Krosnick et al., 1996; Podsakoff et al., 2003). Satisficing behavior usually occurs in long and complex surveys. After a while, respondents might get tired of the time-consuming survey or the difficulty of answering questions. Thus, they might answer in the way they perceive to be easiest or quickest,

just to get the survey over with (Ibid). Cognitive costs and tiredness of respondents can thereby lead to respondents answering "don't know" or "refuse to answer" most of the time. To avoid this problem, the interviewers conducting the Arab Barometer surveys did often not provide the answer options of *don't know* and *refuse to offer* directly when reading the questions, but made these options available if a respondent intuitively answered in such a fashion. Non-differentiation is a very strong form of satisficing which refers to respondents repeating the same response all the time, e.g. giving a rating of a 3 on a scale from 1 to 5 to all questions (Ibid). Since I exclude the answers of *don't know* and *refuse to answer* from my analysis, and trust interviewers to have limited non-differentiation responses, those challenges should only have a minor impact, if any, here.

Acquiescence is a similar challenge to survey validity, as it refers to respondents tending to agree with the interviewee; for example by answering *yes* all the time (Ibid). Rank-order effects can also impact the validity as the order of questions or answers can play a psychological role of respondents tending to answer some over the other (Ibid). For example, the first or last answer option might be preferred to one in the middle; or the answers to a question at the end of the survey might be influenced by answers already given to a related question at an earlier point of the survey. Since I neither created nor conducted the surveys myself, I cannot completely rule out any of these challenges. However, I trust that the surveys were administered in a fashion to avoid most if not all of these problems. Overall, the number of questions per sections was limited and the questions appeared rather simple, which should have reduced potential cognitive costs and tiredness of respondents. And since the surveys were conducted by national citizens and in Arabic, respondents were probably more prone to answer *correctly*.

3.3 Operationalization

This section deals with the operationalization of variables and to that effect with the reliability and validity of my research design. Operationalization refers to the process of defining variables as strictly as possible into measurable factors which can be empirically tested (Adcock and Collier, 2001:530-1; Mueller, 2004). Often concepts, like religiosity for example, are not observable, which means that one cannot measure them directly. Thus, indirect measurements allow us to operationalize concepts into testable variables. Naturally, the aim is to improve reliability and validity of the research design as much as possible by establishing replicable variables that capture the hypotheses as closely as possible (King et al., 1994:151).

3.3.1 The Dependent Variable

As the dependent variable should account for actual participation in the Arab Spring, it is measured as follows. Respondents were asked the following question: "*The Arab Spring led to some demonstrations and rallies in (country name). Did you participate in any of these events? (in 2011 and 2012)"* Respondents were given the options to answer "Yes, I did." or "No, I did not." This dependent variable is therefore binary, coded 0 for No and 1 for Yes. The distribution for this variable is shown in the Appendix (Figure A.3.).

This variable is a very direct measurement of Arab Spring participation; but it is limited to wave 3 of the AB. This posits a problem because feelings of frustration and dissatisfaction as a result of relative deprivation might have changed from the time of actual protest participation (e.g. January 2011) to the time of the survey conduction of wave 3 in late 2012/2013. Thus, I use wave 2 of the Arab Barometer to test for potential differences in protest participation resulting from changed feelings of relative deprivation; thereby checking for the robustness of my results from the analysis with wave 3. Due to the absence of the question asking directly for Arab Spring participation in wave 2, I employ an alternative question here. Respondents were asked the following: *Here is a set of activities that citizens usually take part in. During the past three years, did you participate in a protest, march or sit-in?* Respondents were given the options to answer "Once", "More than once", and "I have never participated." Since I am only interested in if the respondent participated in protest activity or abstained from it, I combine the first two answers into "I have participated once or more than once", coded 1; thus establishing a second binary dependent variable, coded 0 for "I have never participated."

Correlation tests of the two dependent variables show that they are relatively highly correlated (Pearson r = 0.491). Thus, it is reasonable to use the latter dependent variable as a substitute for the former (which directly asks for Arab Spring participation) when using wave 2.

Among all countries surveyed in the *third* wave of the Arab Barometer, the acknowledged participation in the events of the Arab Spring was relatively low: only 13% (or 1,923) of the respondents answered *yes*, while 84.3% (or 12,459) answered *no.*[38] Yemen showed the highest participation with more than a third of the respondents having participated in protests (427 of 1,200). Nevertheless, an overall tendency of non-participation over protest participation in

[38] Some respondents also answered "don't know" or refused to answer. Among all surveyed participants in the Arab Barometer wave 3, which amount to 14778, 29 answered "don't know", 367 refused to answer and 1 observation was missing. I excluded these cases as missing data, as they amount only to 2.7% of the total.

the Arab world appears reasonable to assume, as no country had higher participation than non-participation. Table 3.2 illustrates this by showing (non-)participation per country.

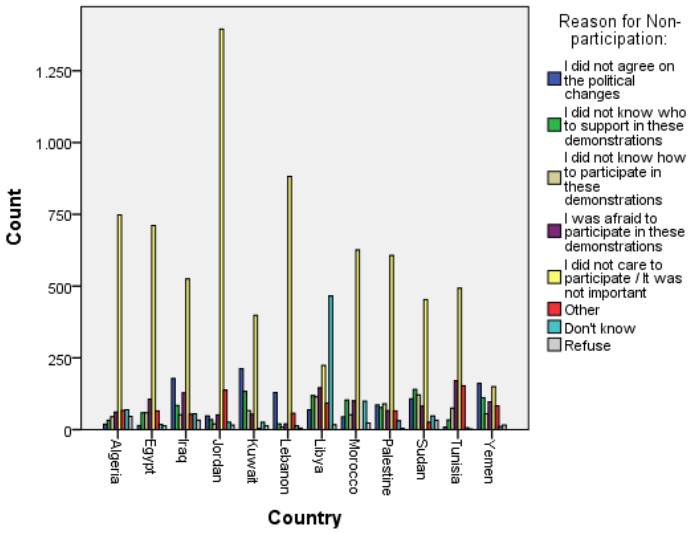
Table 3.2: Protest Participation per Country (waves 2 and 3)

Country	Participation in the Arab Spring (AB *wave 3*)		Participation in protest, march, or sit-in (AB *wave 2*)	
	Yes	No	Yes	No
Algeria	46	1089	220	964
Egypt	139	1044		
Iraq	74	1109	215	996
Jordan	49	1728	94	1059
Kuwait	101	905		
Lebanon	36	1134	319	1059
Libya	407	811		
Morocco	104	974		
Palestine	134	1030	289	892
Sudan	156	1009	445	1036
Tunisia	250	945		
Yemen	427	681	387	766
Saudi Arabia			28	1291
Total	1923	12459	1997	8063

Source: Arab Barometer, 2014

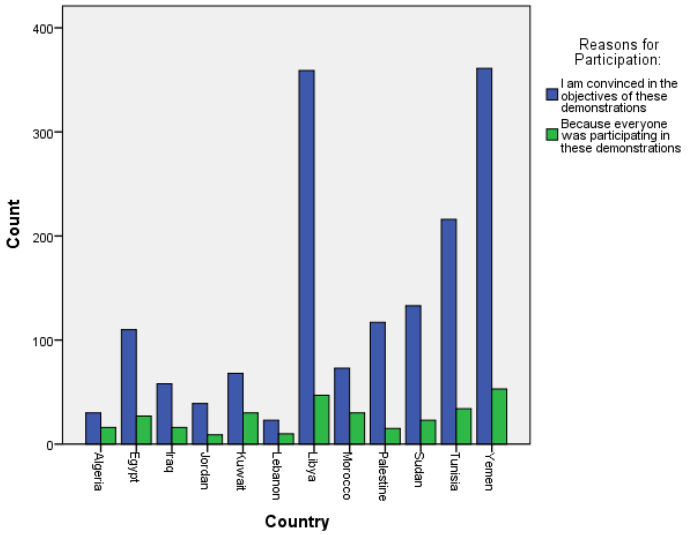
The apparent low participation could be the result of social desirability bias. Respondents might have tried to please the interviewers by answering in ways that the latter wanted them to. Respondents might have also feared the threat of repercussions by governments if acknowledging protest attendance. However, such problems were probably mitigated by the fact that the surveys were conducted anonymous and corresponding reassurances of safety made by the interviewer. In fact, it is reasonable to assume that fear has played a minor role, if any, in explaining non-participation. This is because the answers to the follow-up question of *"Why did you not participate?"* showed that only 7.3% of the respondents were afraid to participate in these demonstrations; while about half (48.8%) did simply not care or found it not important to do so. Figure 3.1 reviews the reasons for non-participation in more detail.

Figure 3.1: Responses to the Question "Why did you *not* participate?" (Wave 3)



Satisficing or non-differentiation might explain non-participation answers, too. As these issues are never easily dismissed, the large amount of respondents should mitigate these potential biases. On the other hand, positive answers might be biased too. For example, respondents that participated in the Arab Spring might have done so due to group pressures or bandwagon-effects rather than actual feelings of relative deprivation. Such *bandwagoning* or "being part of the group" could entail participants wanting to uphold their social image among neighbors, friends or families. Another follow-up question that addressed participants asked "*Why did you participate?"* Figure 3.2 shows that only a minority participated because of everyone else's participation, while the majority was convinced in the objectives of these protests.[39]

Figure 3.2: Responses to the Question "Why did you participate?" (Wave 3)



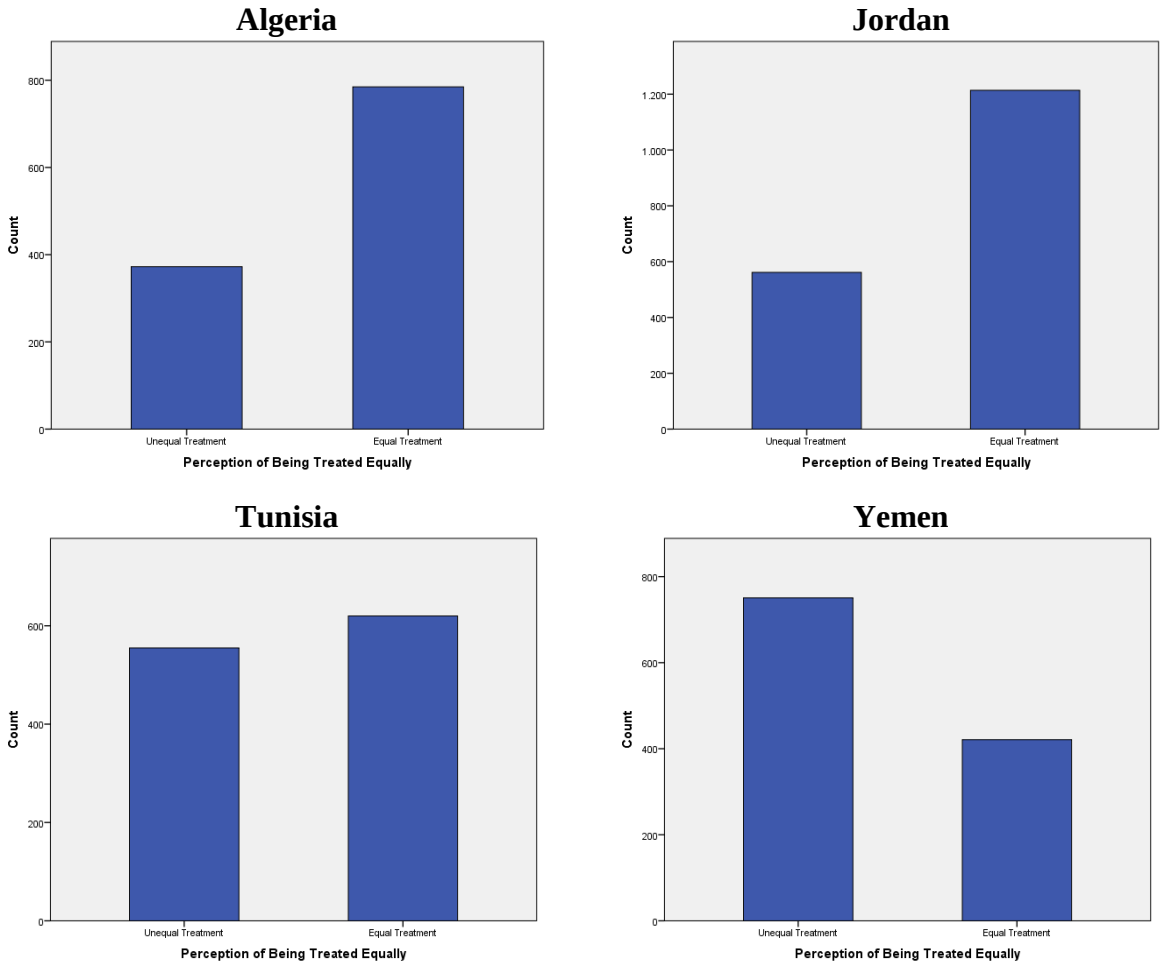
[39] I excluded the options of "don't know" and "refuse to answer" because they were almost non-existent. More detailed values for these two graphs are available in the Appendix, Table A.11.

3.3.2 The Independent Variables

3.3.2.1 Motivational Variables

Recalling the theoretical chapter, the first hypothesis concerned the perceptions of unfair treatment.[40] Respondents were asked the following: *"To what extent do you feel that you are being treated equally compared to other citizens in your country?"* Answer options included *to a great extent, to a medium extent, to a limited extent,* and *not at all.* Since "to a limited extent" and "not at all" are rather negative perceptions of being treated equally, I recoded this variable into a binary form with these two answers referring to *feelings of being treated unequally,* coded 0; and the answers of "great" and "medium extent" relating to *feelings of being treated equally,* coded 1. The corresponding distributions are shown in Figure 3.3 below.

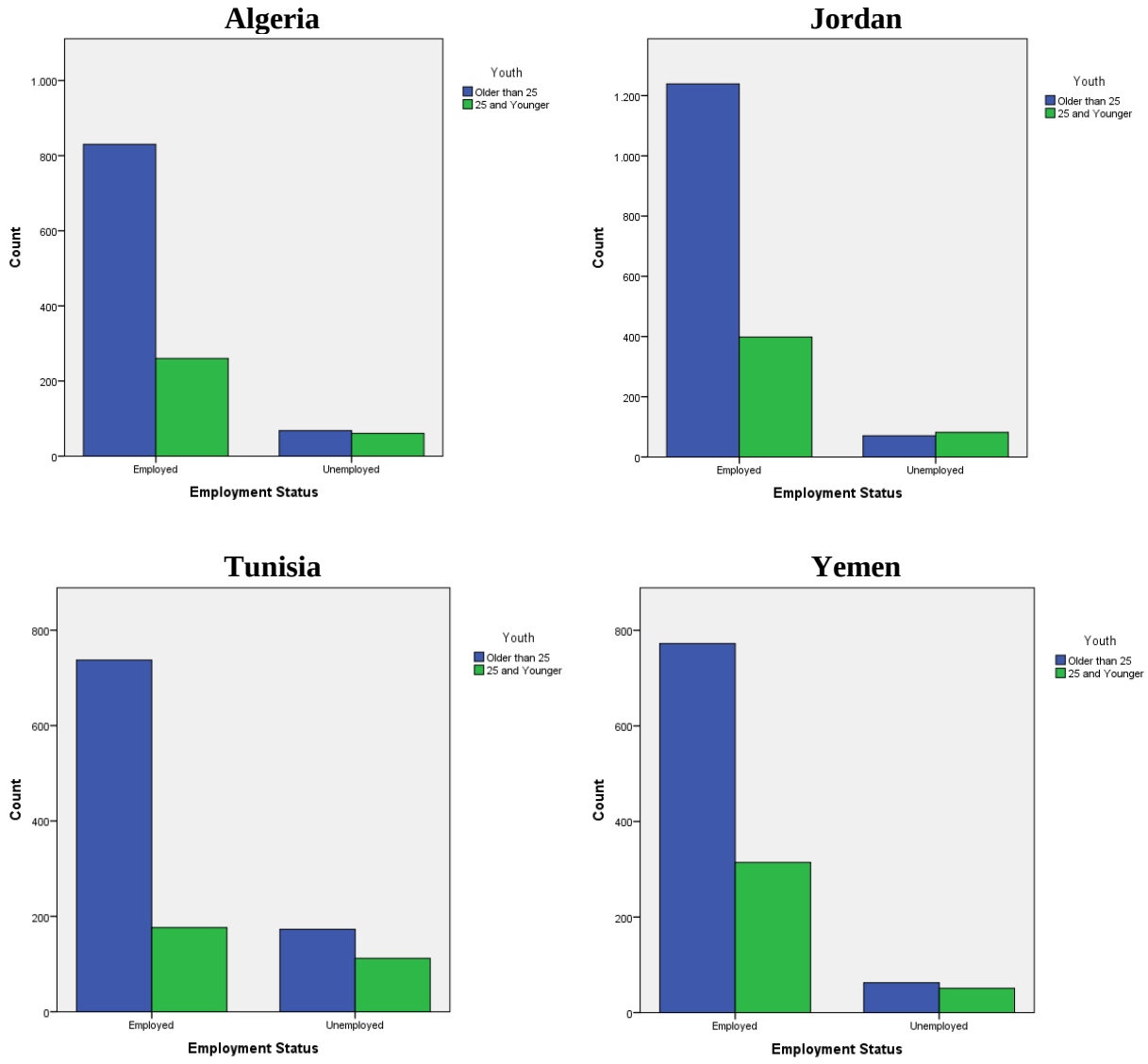
Figure 3.3: Respondents' Perception of Being Treated Equally (per country)



[40] This hypothesis could also be measured by the question "Generally speaking, how would you compare your living conditions with the rest of your fellow citizens?" Possible answers included much worse, worse, similar, better, and much better. Unfortunately, most respondents (about 60%) answered "similar", while the remaining 40% split into 20% each perceiving conditions to be better or worse, respectively. Hence, this question is not very useful to measure feelings of relative deprivation. This will be further discussed in Chapter 5 (5.2.1).

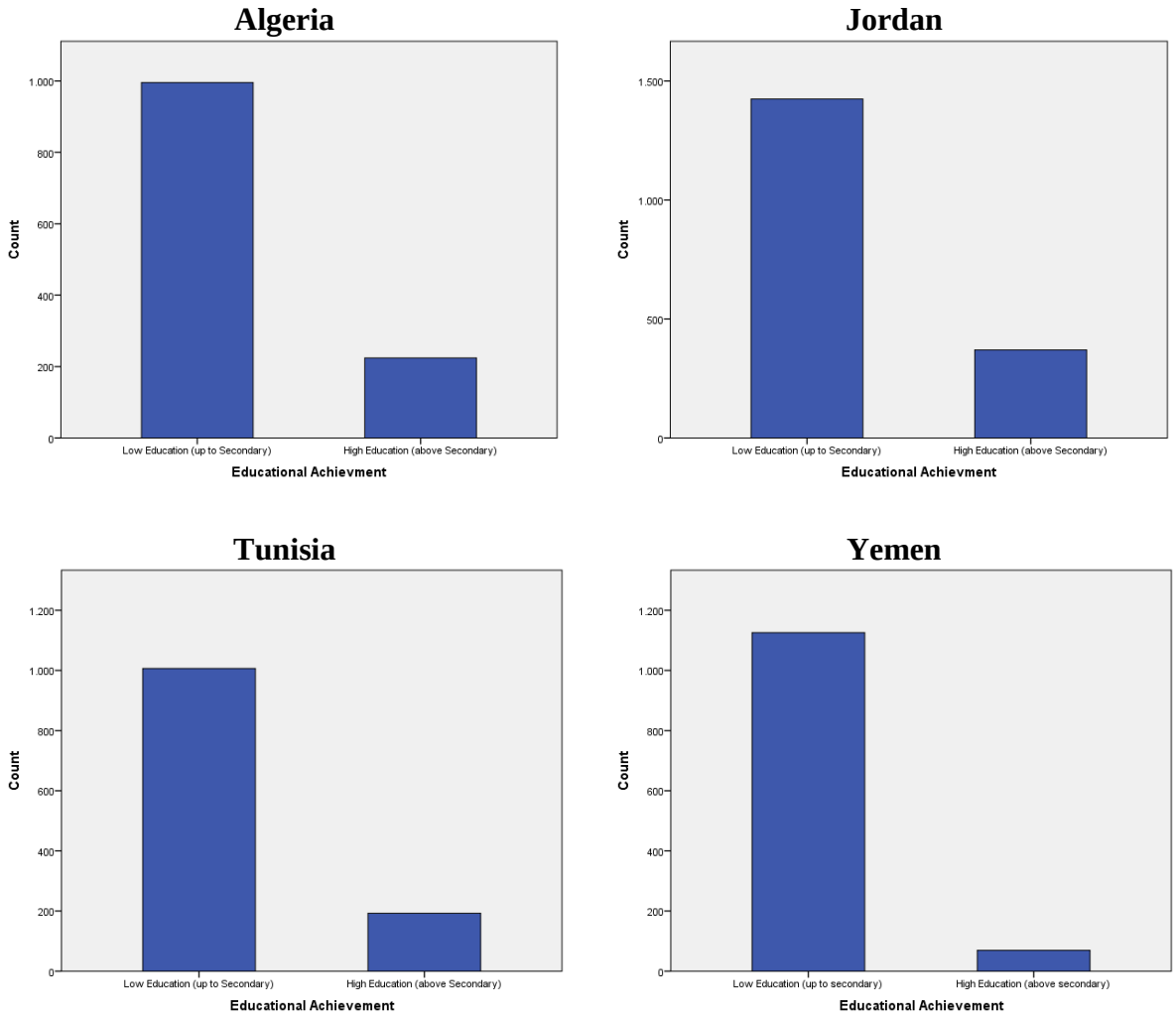
The second hypothesis related to an interaction term of unemployment and youth. Respondents were asked "*Do you work?"* with options of answering *yes* or *no.* This includes both part- and full-time employment. To capture real unemployment, the measure excludes statuses such as being retired, a housewife, or a student. The variable is recoded 0 for *being employed* and 1 for *no employment*, since unemployment is of interest. Concerning the youth variable, I created a binary variable coded 1 for respondents being below the *age* of 25. Since all respondents were at least 18 years old, this coding then takes the youth segment of 18 to 25 years of age into account. The interaction term of these two binary variables thus tests for Hypothesis 2. Figure 3.4 depicts the distributions for unemployment and youth variables in clustered bar graphs.

Figure 3.4: Unemployment and Youth (per country)



Hypothesis 3 involved education. Respondents were given the following options regarding their level of education: *illiterate/no formal education*, *elementary*, *preparatory/basic*, *pre-high school diploma (Yemen only*[41]*)*, *secondary*, *mid-level diploma/professional or technical (not in Tunisia)*, *BA*, and *MA or above.* To test for education being relevant for protest participation, I include this variable in binary form with all categories up to *secondary* coded as 0, and all categories above *secondary* coded as 1. The variable's distributions are shown in Figure 3.5.

Figure 3.5: Education (per country)

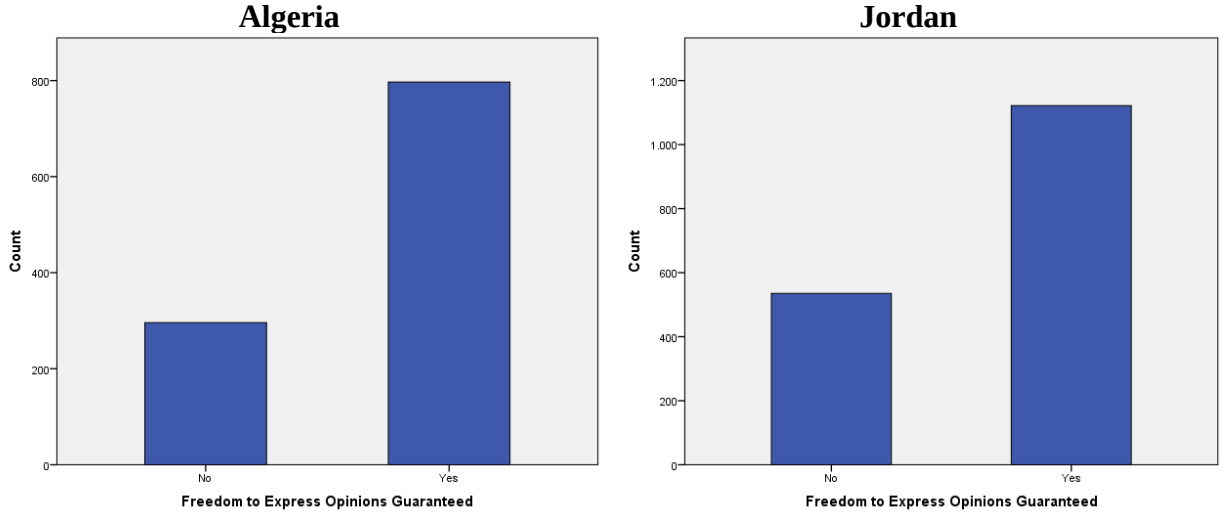


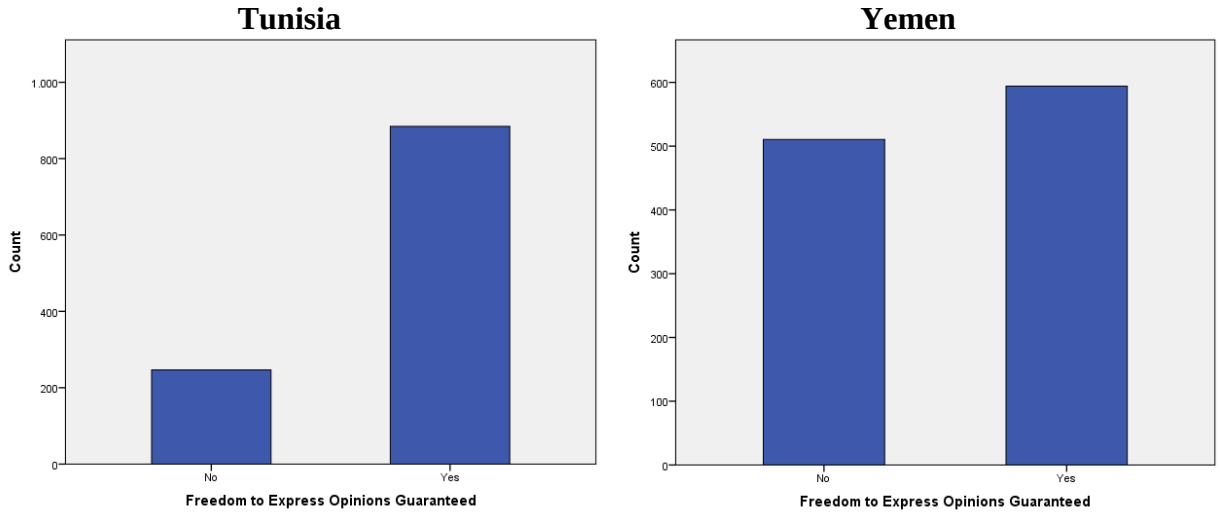
The fourth hypothesis concerned the perception of the status of freedom of expression in the respondent's country. A potential question to evaluate this perception might be the following: "*How much do you support individual political freedoms such as freedom of the press, freedom of expression, and freedom to establish associations?"* Answers ranged from *I strongly support* to *I strongly don't support.* But while this question captures the support for more

[41] Education is not included for Yemen, since the weight variable for this country adjusts for education.

freedoms, it does not necessarily entail feelings of deprivation. To merely *support* a concept like freedom of the press does not mean that the respondents necessarily perceive themselves as being deprived of that freedom. They might perceive freedoms to be established and subsequently support them, for instance. A better measure for this hypothesis provides the following question: *"To what extent do you think that' freedom to express opinions' is guaranteed in your country?"* Respondents were asked to answer various items in a listed order, namely *freedom to express opinions, freedom of the press, freedom to join political parties, freedom to participate in peaceful protests and demonstrations, freedom to join civil associations and organizations, freedom to sue the government and its agencies,* and *freedom to vote (parliamentary, municipal and provincial elections).* For each of these items, respondents were given the options of *guaranteed to a great extent, guaranteed to a medium extent, guaranteed to a limited extent,* and *not guaranteed.* I conduct a Cronbach's Alpha reliability analysis of these seven items relating to measures of freedom to express opinions, because I intend to combine the aggregated scores of these items. The Cronbach's Alpha score of 0.856 indicates 85.6% reliability in a composite score of combining the seven items. The inter-item correlations and corrected item-total correlations are overall very high too. Thus, I take the aggregate of all seven measures to combine them into a single variable measuring how much "freedom of expression is guaranteed." The answer options are connected to form a binary variable, with *great* and *medium extent* coded as 1; and *limited extent* and *not guaranteed* coded 0. Figure 3.6 illustrates the distributions for this variable.

Figure 3.6: Respondents' Perception of Free Expression (per country)





Hypothesis 8 related to religion playing a motivational role for protest participation. This factor of religiousness could be measured by the question *"Do you pray daily?"* However, Hoffman and Jamal (2014:598) as well as Jamal and Tessler (2008) have argued that measures like daily prayers are often subject to social desirability bias – resulting in overwhelmingly affirmative answers and thus providing little variation to exploit. Thus, they argue that Qur'an-readership offers the most reliable predictor of religiosity among the questions asked in the Arab Barometer, as there is little to no social stigma against people who do not read the Qur'an (Ibid). Figures 3.7 and 3.8 illustrate the discrepancy in variation on average by taking into account all surveyed countries of the Arab Barometer wave 3.

Figure 3.7: Daily Prayers (all countries)

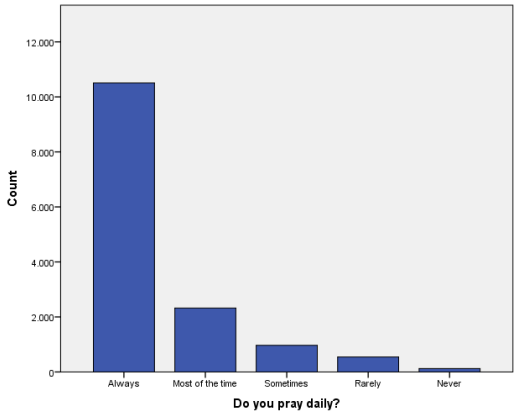
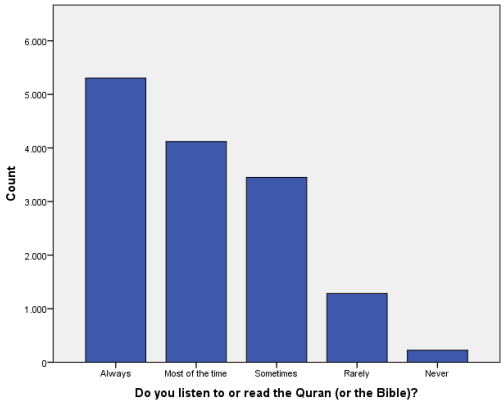


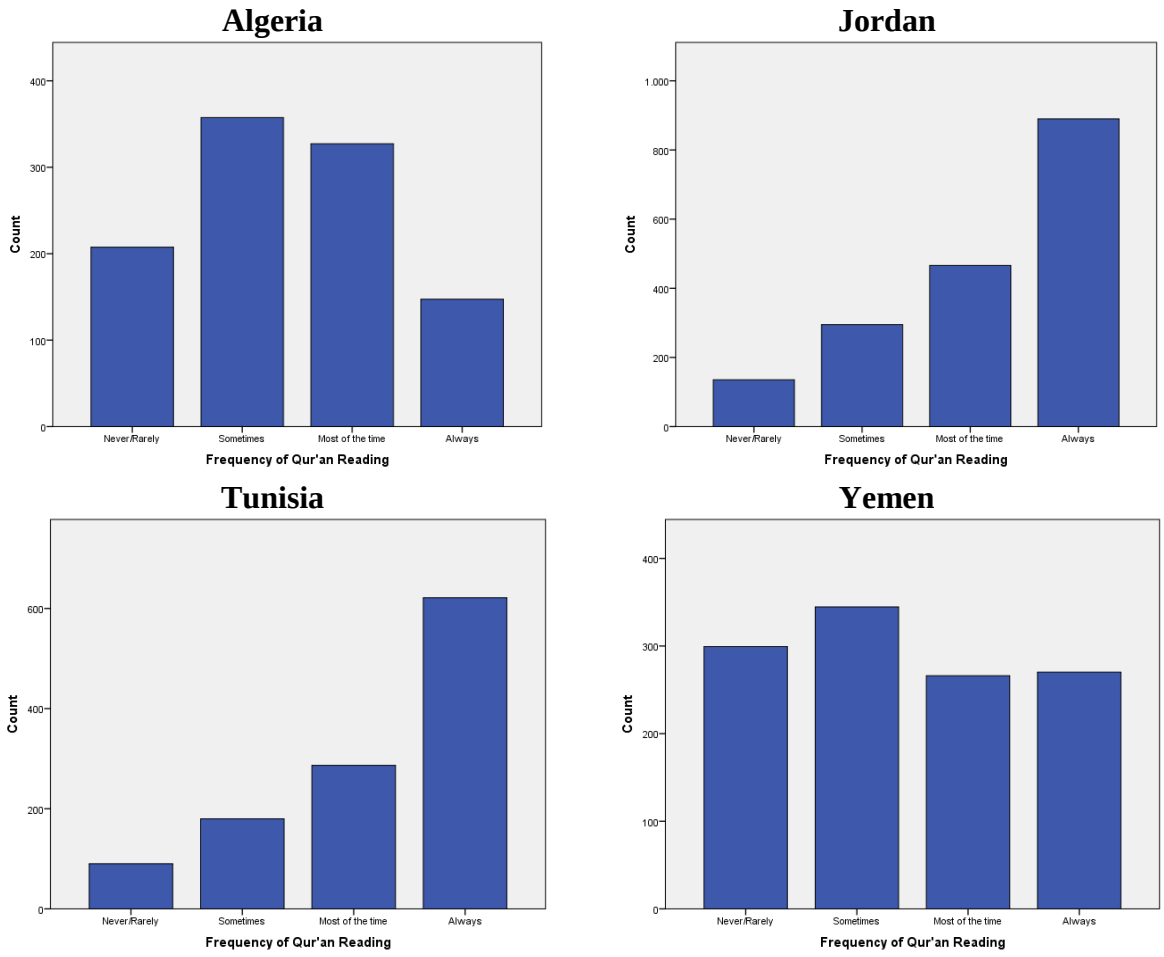
Figure 3.8: Qur'an Reading (all countries)



Consequently, I use the Qur'an-readership variable to test Hypothesis 8. Respondents were asked how often "*Do you listen to or read the Qur'an/the Bible*?" Possible answers included *never (only in some countries), rarely, sometimes, most of the time,* and *always.* I could use this variable as a quasi-metric variable, a common strategy when using a Likert scale with

approximately equal intervals (Chimi and Rusell, 2009; Yusoff and Janor, 2014). But this method is also widely contested, as distances between categories are not equally comparable. Thus, I include this variable in categorical form with *rarely* (plus *never* if available) as baseline variable. Thus, all categories use *rarely/never* as reference of comparison. Figure 3.9 depicts the distributions of this variable.

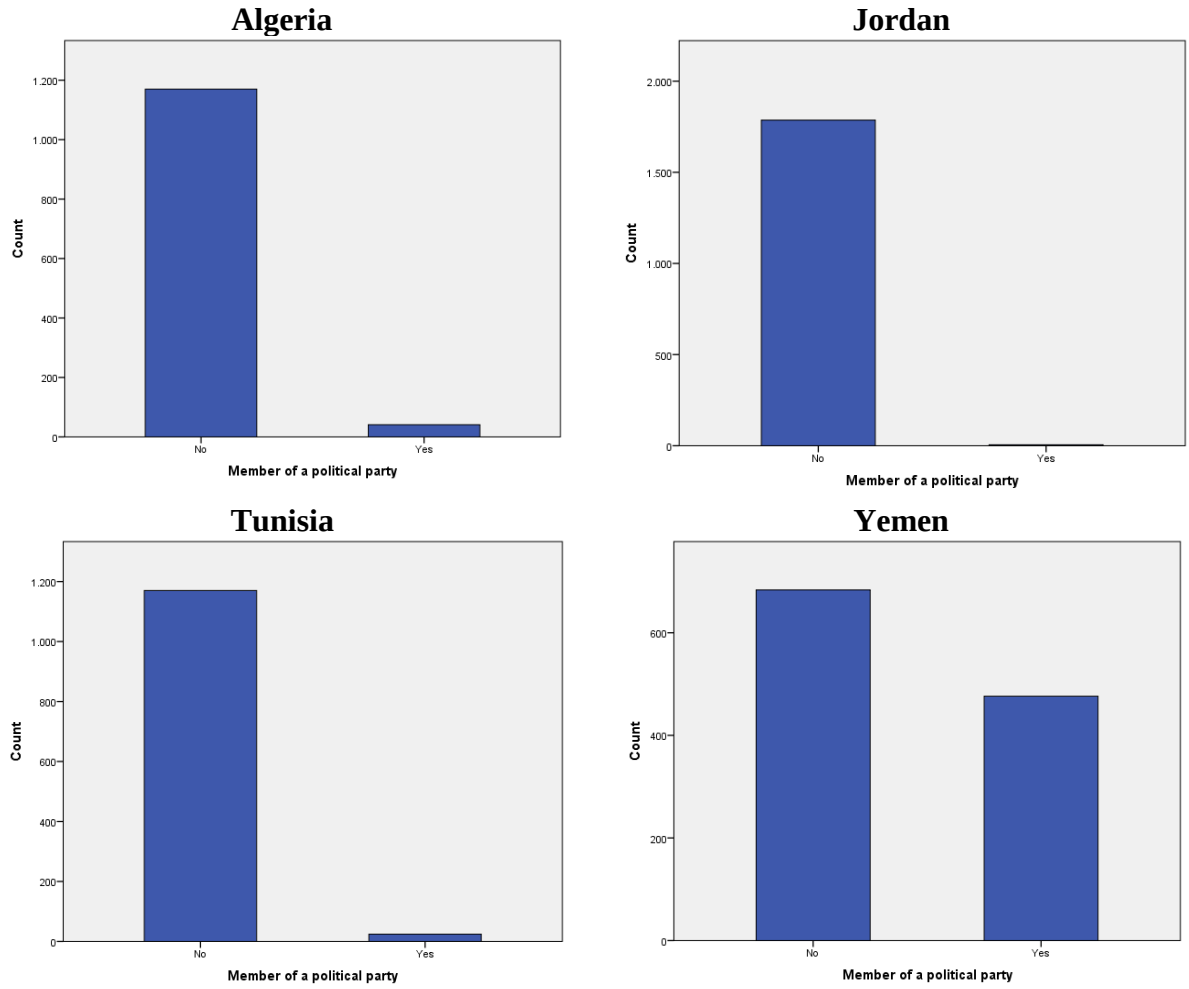
Figure 3.9: Qur'an Reading (per country)



3.3.2.2 Opportunity Variables

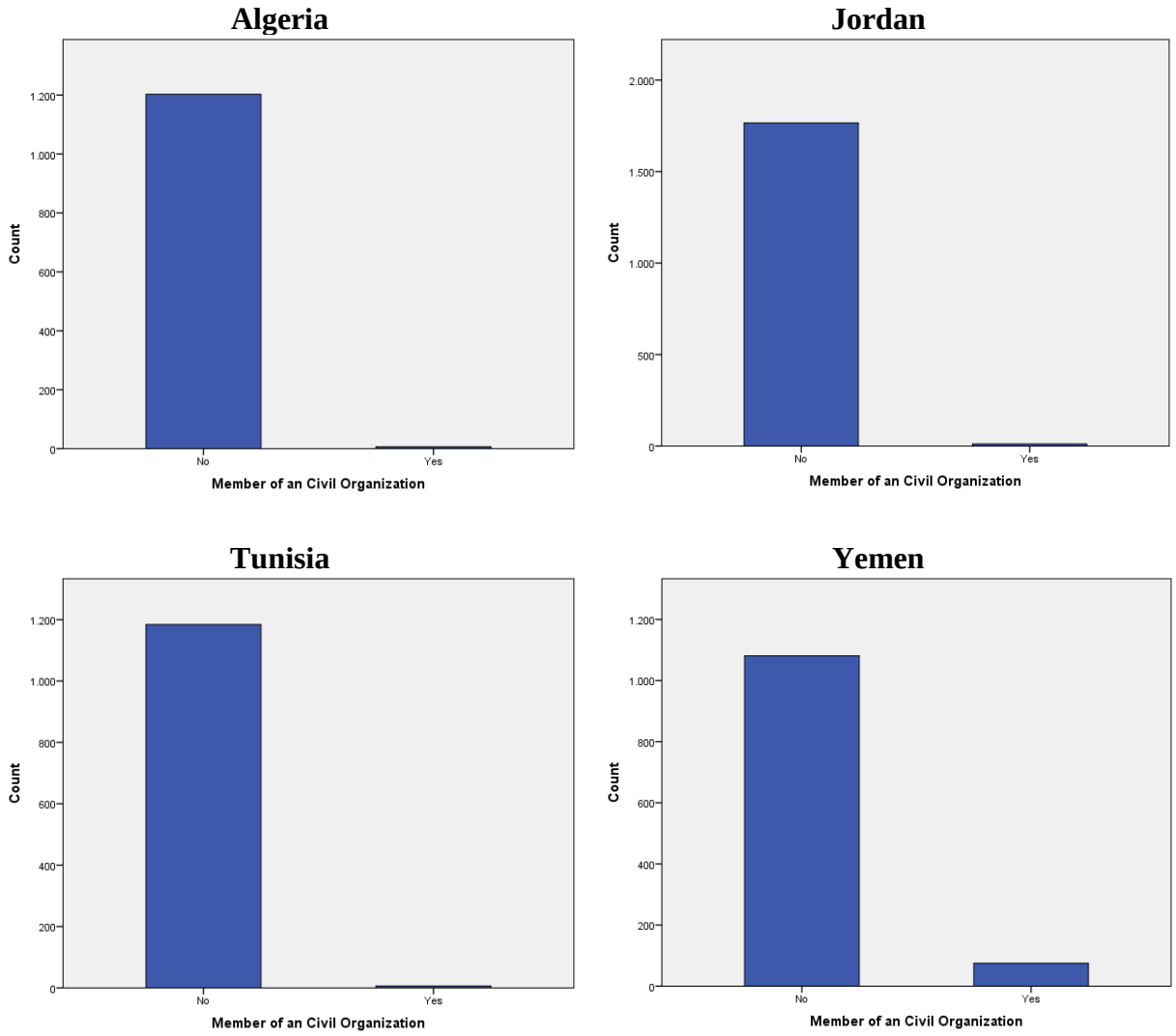
The opportunity-based hypotheses related to societal platforms that allowed citizens to connect, interact and share their feelings of relative deprivation, thereby supplying resources and opportunities that make protest participation more likely. Therein, the fifth hypothesis concerned the membership of political parties or civil organizations. Respondents were asked *"Are you a member of a political party?"* with answer options of *yes* and *no*. The distributions of this variable are shown in Figure 3.10.

Figure 3.10: Membership of Political Party (per country)



Regarding the membership in a civil organization, I conduct a Cronbach's Alpha reliability analysis of five items that identified potential membership. These include being a *member of a charitable society, of a professional association/trade union, of a youth/cultural/sports organization, of a family/tribal association,* or *of any other civil society organization.* The Cronbach's Alpha score of 0.852 indicates 85.2% reliability in the established composite score of the new variable. Overall correlation among the five measures was very high, too. The newly established, aggregate variable of the five items thus measures average "membership in a civil organization" in binary form, with the coding of 1 relating to membership. The variables of membership in a political party and membership of a civil organization are only weakly correlated (Pearson r = 0.127), thus allowing to include both variables simultaneously without much threat of multicollinearity. Figure 3.11 illustrates the distributions of this variable.

Figure 3.11: Civil Organization Membership (per country)



Hypothesis 6 concerned the usage of Facebook as a tool for facilitating protest movements. The corresponding question was *"Are you a member of or participant in a Facebook page?"* with answer options of *yes* and *no.* As will be discussed in more depth in the ensuing chapter, one might presume that Facebook usage does not reflect adequate public debate among citizens, as it is rather a tool to chat and entertain. Hence, an alternative variable that takes internet usage for political matters into account might be more appropriate.[42] With the confirming reliability of a Cronbach's alpha test, I combined the following three variables. Respondents were asked *"Do you use the internet in order to (a) find out about political activities taking place in your country, (b) express your opinion about political issues,* and *(c) find out about opposing political opinions in your country.* Answers include *yes* coded 1 and *no* coded 0. I

[42] Only people that actually used the internet (a preliminary question) were asked about usage of Facebook and the internet for political purposes.

use this as an alternative variable to Facebook for testing new social media's impact on protest participation. Figure 3.12 and 3.13 depict the distributions for these two variables.

Figure 3.12: Usage of Facebook (per country)

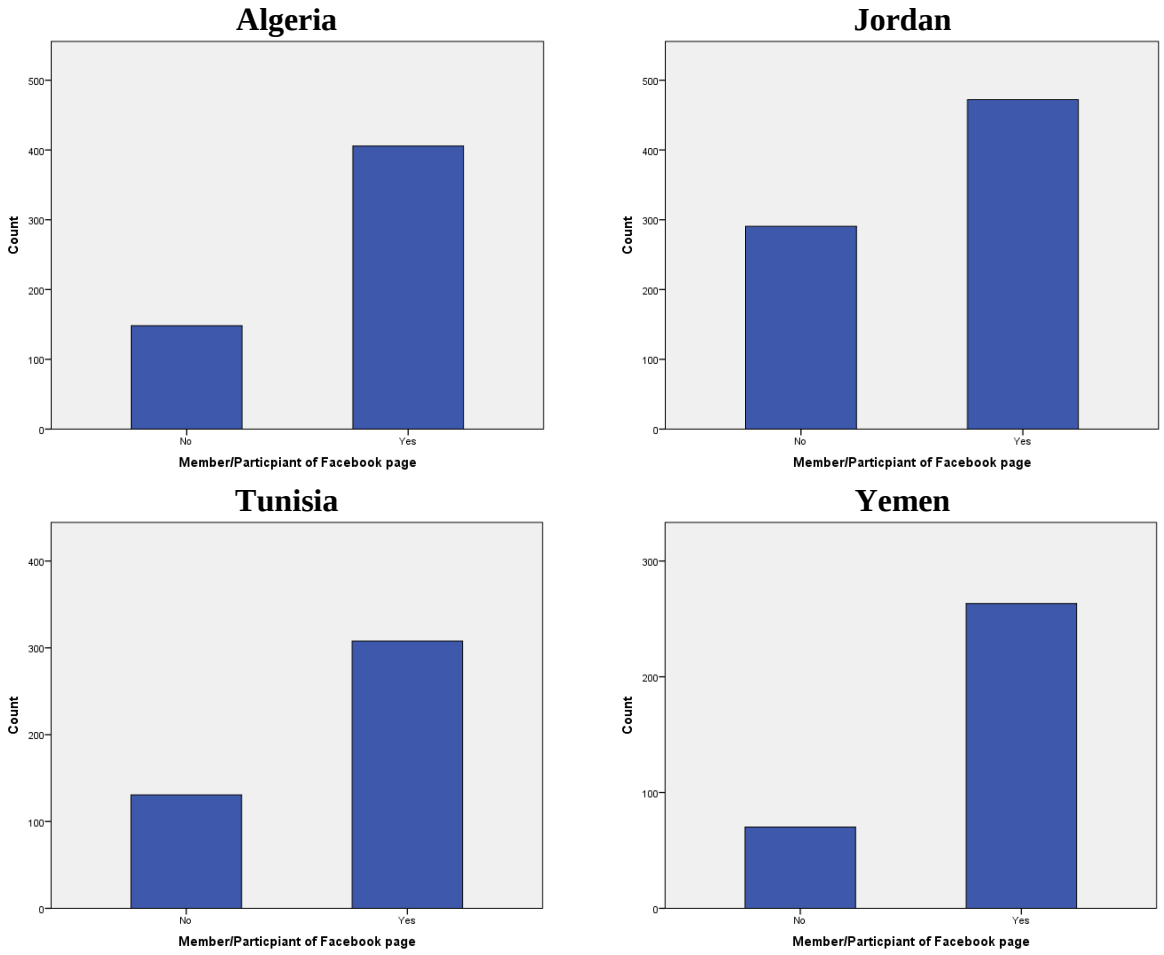
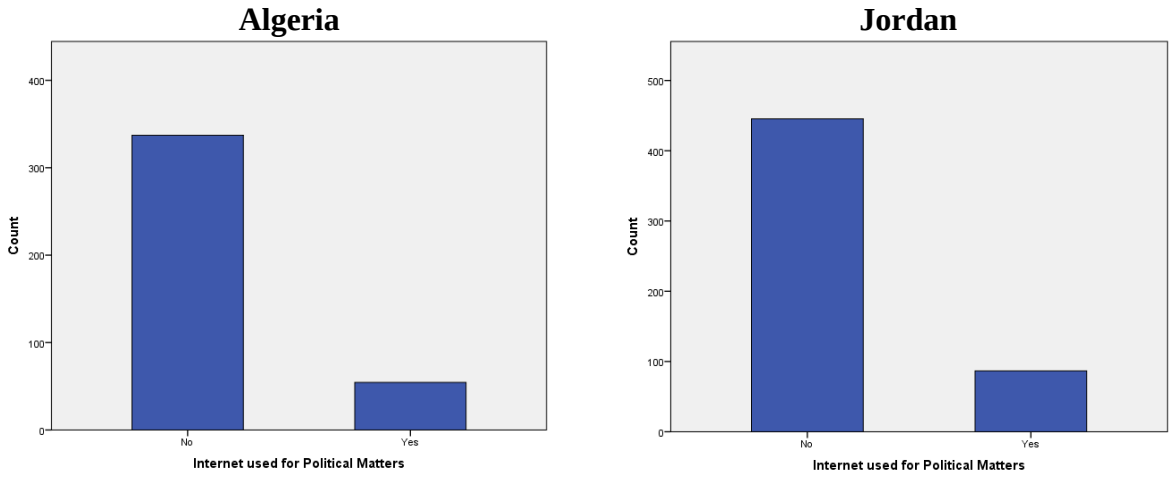
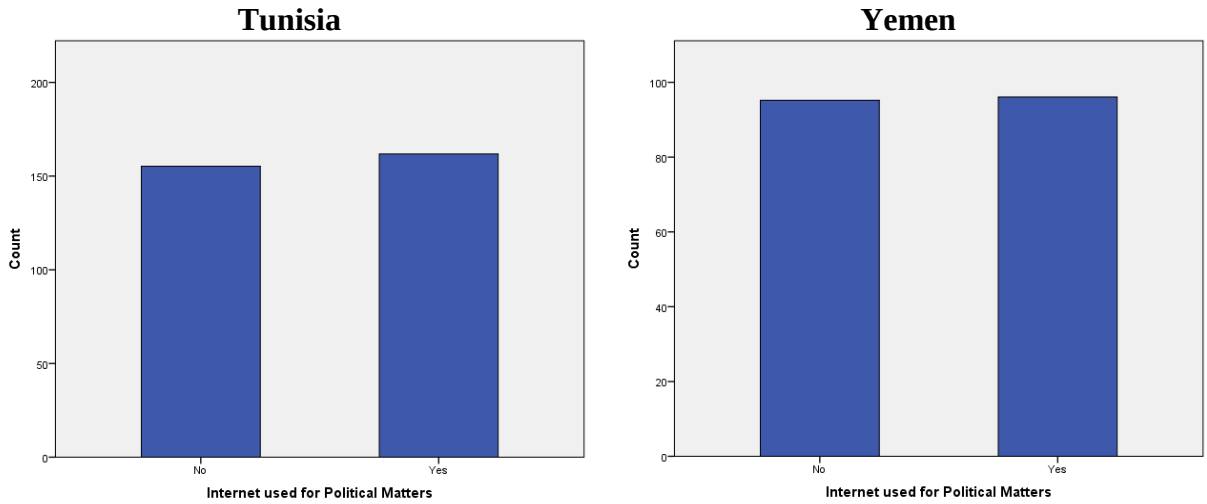


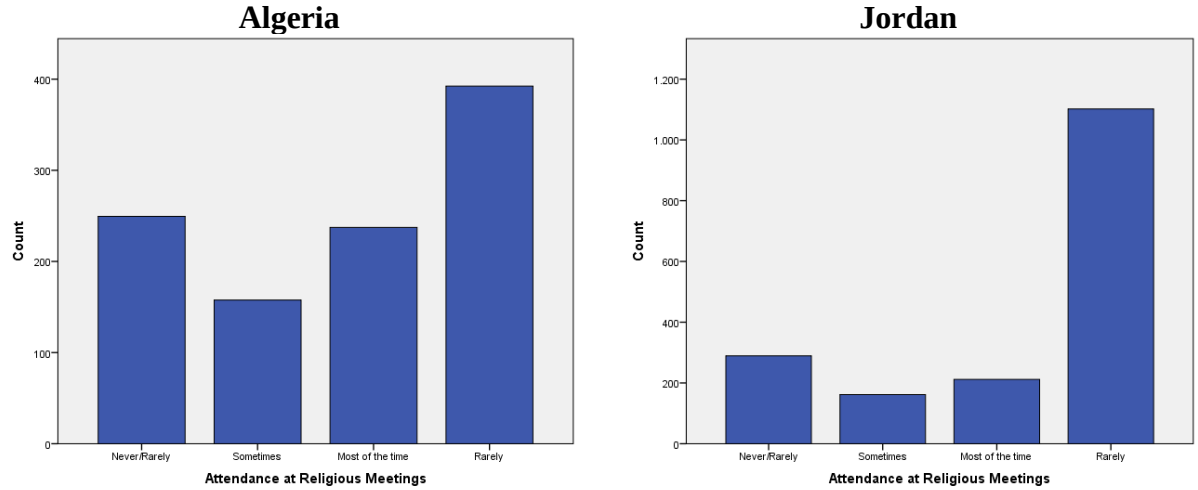
Figure 3.13: Internet Usage for Political Matters (per country)

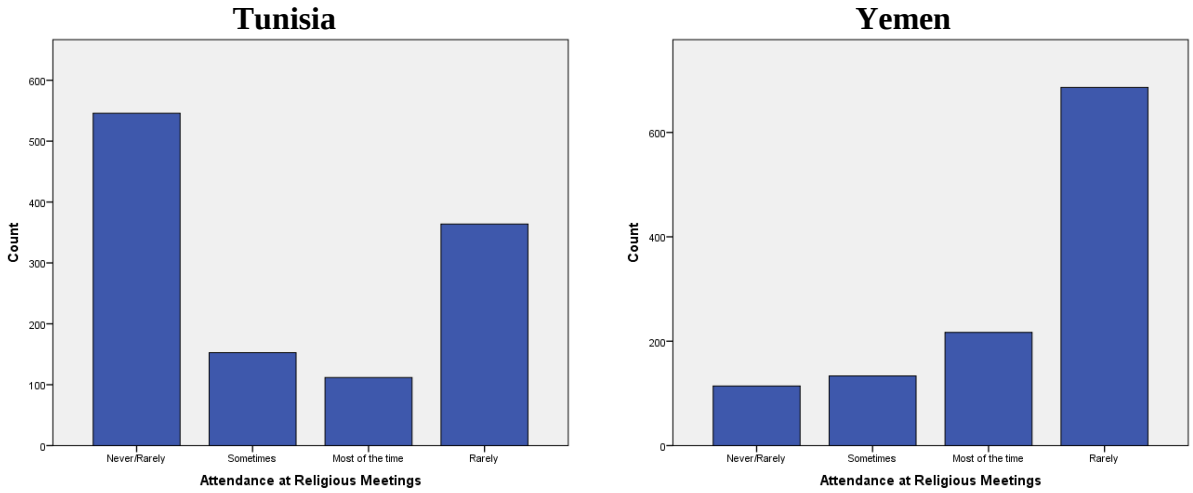




Another opportunistic aspect relating to the increased likelihood of protest participation referred to attending religious meetings, such as Friday Prayers (Hypothesis 7). The corresponding question asked respondents "*How frequently do you attend Friday prayer/Sunday services?"* Possible answers included *never (only in some countries), rarely, sometimes, most of the time*, and *always.* Corresponding to the argumentation of the more individual acts of worship as operationalized by Qur'an reading in the section on motivations above, I use this variable in categorical form with *rarely* (plus *never* if available) as baseline variable as well. Thus, all categories use *rarely/never* as reference of comparison. The distributions for this variable are shown in Figure 3.14.

Figure 3.14: Attending Religious Meetings (per country)





3.3.2.3 Control Variables

In order to address potential confounding factors and avoid spurious relationships among the findings, I include control variables in the model. Age is included because older generations are less likely to participate in physical activities like protests, as they are more likely to have responsibilities like jobs and families. The gender variable should account for the discriminate status of women compared to men in Muslim societies, making it less likely that women are allowed to participate in public events like protests (at least not without the permission of a male guardian). Another control variable accounts for the respondent's interest in political affairs. This variable is included because citizens that are more interested in politics should be more likely to partake in protest activity – representing their opinions – than those who are less politically devoted. Respondents were asked the following two questions: *"In general, to what extent are you interested in politics?"* with answer options of *very interested, interested, slightly interested*, and *not interested;* as well as *"To what extent do you follow political news in your country?"* with answers of *to a great extent, to a medium extent, to a limited extent,* and *I don't follow political news at all.* A Cronbach's Alpha reliability analysis identified high correlation and reliability of combining these two variables, accounting for an aggregate measure of "interest in political affairs." Thus, I created a binary variable of the aggregate of these two measures to include as a control for interest in politics.[43]

[43] Note that my variable coding can be reviewed in Appendix 2.

3.4 Model

The adequate statistical model for my analysis consists of binary logistic regressions, because the dependent variables are dichotomous (Stock and Watson, 2012:423-49). In other words, the dependent variable is a dummy variable with two categories, in this case *yes* and *no*. Logistic regression estimates parameters to solve an equation by fitting models, which are based on predictors of observed data. The actual model reflects the case when predictors are closest to observed values. Therein, the parameters are estimated using maximum-likelihood estimation.

Since the dependent variable can take on only two values, 0 and 1, a logistic regression is more reasonable to use than standard OLS. This is because logistic regressions produce an s-shape curve that is bounded below by 0 and above by 1, which is appropriate since I am interested in predicting the value of a probability which naturally ranges between 0 and 1 (Ibid). Logistic regression uses maximum likelihood estimations after transforming the dependent variable into a logarithmic form (Ibid:438). Probit and Logit regression are such nonlinear regression models specifically designed for binary dependent variables, as they ensure that the predicted probability of the dependent variable is between 0 and 1 (Ibid:429). The mathematical description of the s-shape curve with the predictor (x) and **probability ($\boldsymbol{\pi}$)** of the *success* of the binary dependent variable Y is shown in the following equation (Ibid:434).

$$\pi(Y = 1 \mid X_1, X_2, \dots, X_k) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)}} \qquad \textbf{Equation 3.1}$$

Logistic regression does not directly calculate probabilities but rather the odds of one outcome over the other. **Probability** refers to the *percentage* of an outcome to occur, calculated by dividing the chance of an event happening by the *total* number of event measures $\left(Probability = \frac{Event\ of\ Interest}{Event\ of\ Interest + Not\ Event\ of\ Interest}\right)$, taking on values between 0 and 1. On the other hand, **odds** refer to a ratio of the likelihood of an event happening compared to the likelihood of an event *not* happening $\left(Odds = \frac{Event\ of\ Interest}{Not\ Event\ of\ Interest}\right)$. Unlike probability, odds can thereby range from 0 to infinity. Odds ratios correspondingly refer to a ratio of odds, or the factor by which the odds change. This relative measure of odds ratios is essential for logistic regressions, as these regressions produce logit values that – standing by themselves – do not necessarily entail a lot of meaning. In order to allow for an adequate interpretation of the nonlinear s-curve relationship, we can apply the natural logistic function on Equation 3.1 to establish a linear model:

$$natural\ log(odds) = ln\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k \qquad \textbf{Equation 3.2}$$

Given this linear relationship between the natural logarithm of π, which is the probability of the interested outcome, and the predictors x, we can now use the common OLS approach and estimate the usual intercept and slope parameters. But because the linear relationship utilizes the logistic function, the regression estimates are on the log-scale which impacts the interpretation of the coefficients. In order to be able to actually interpret these changes in the natural logarithm of π, one can transform the slope estimates so that they have a reasonably intuitive interpretation as odds ratios. This is done by simply exponentiating (or *using the antilogarithm of*) both sides of the Equation 3.2:

$$Odds\ ratio = \frac{\pi}{1-\pi} = exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k) \qquad \textbf{Equation 3.3}$$

Thus, the exponentiated values of the unstandardized logit values are odds ratios that can be used to predict the likelihood of the *successful* outcome in the dependent variable (Y=1). It is important to note that these odds ratios are relative and *not* absolute measures, as each exponentiated value reflects a likelihood of odds *relative to* or *controlling for individual differences in* the other explanatory variables.

3.4.1 Assumptions of Binary Logistic Regressions

In order to avoid biases and make valid inferences in the analysis, any model must satisfy certain assumptions. Unlike OLS regressions, logistic regression does *not* assume linearity between the raw values of dependent and independent variables, does *not* assume homoscedasticity, does *not* require variables or error terms to be multivariate normally distributed, and the measurement level of independent variables does *not* need to be metric.

The following assumptions have to apply for logistic regression models (Agresti, 2002:219-30). First, the dependent variable must be binary, with the *success* (Y=1) reflecting the outcome of interest (Ibid). Second, the model should be correctly fitted, which means to avoid omitted variable bias as well as excluding irrelevant variables (Ibid). Third, observations and error terms need to be independent which entails avoiding dependent sample designs (Ibid). Fourth, independent variables should not reflect linear combinations of each other, thus avoiding multicollinearity (Ibid). Fifth, any independent continuous variables need to be linearly related to the log odds because the true conditional probabilities are a logistic function of the

independent variables (Ibid). Last but not least, the independent variables should be measured without errors and strongly influential observations need to be accounted for (Ibid).

3.5 Concluding Remarks

This chapter provided a descriptive account of the data, variables and model used for my analysis. With the variables and model at hand, my analysis includes binary logistic regressions separately for each of the selected four cases. This should allow for the most conservative test of my hypotheses, as it allows every coefficient in the models to vary by country and not load onto each other. As the number of cases is quite small (mostly due to data availability), multilevel modelling is not advisable here since there exists typically not enough information to accurately estimate group-level variation with less than five cases (Gelman and Hill, 2006:247). Hence, I analyze each country individually, allowing for each country's unique characteristics influencing its population differently; and still try to identify potential similarities in protest activity among the countries. The following chapter continues with a comparative approach of simply *eyeballing* the results of the respective logistic regressions and comparing them with each other – which is the best possible choice, since the different waves of the Arab Barometer do not reflect panel data. Eventually, robustness tests will account for the validity and reliability of the results.

4 Findings and Discussion

This chapter outlines the findings of my analysis and discusses respective results. Using different models, I show that perceptions of unequal treatment, the lack of freedom to express opinions, better educational achievements, as well as being a member in a political party or civil organizations all contributed at least to some extent to the likelihood of participation in the Arab Spring. On the other hand, youth unemployment appears to have hardly any explanatory power. And while Facebook did not contribute to explaining protest participation at all, using the internet for political purposes did so. Moreover, unlike expected, *less* frequent Qur'an reading appeared to have increased the potential to participate in the Arab Spring. And finally, only countries that experienced regime leadership change indicate a significant positive relationship between the frequency of attending religious gatherings and Arab Spring participation. These results are also fairly consistent if adjusting for potential time lags (using wave 2).

All in all, the results and corresponding goodness-of-fit tests indicate that both motivational as well as opportunistic factors play a role in explaining Arab Spring participation. While it thus appears that both relative deprivation theory as well as resource-mobilization theory played a part in motivating and facilitating protest participation in the Arab uprisings, feeling relatively deprived seemed to have had a more consistent impact on participation than opportunistic factors did. Overall, it appears fair to assess that at least some of my theoretical assumptions are confirmed by the findings of my analyses.

This chapter is organized as follows. First, I present and discuss the results of the models that include variables for all hypotheses established in Chapter 2, testing these with the most recent data of AB wave 3. Second, I adjust for potential time lags by evaluating results for corresponding regressions using data of AB wave 2. Third, based on the initial results for AB wave 3, revised models are presented to account for more stable and confident measures. These models exclude the social media variable; and they include one more case for both a country that experienced regime leadership change (Egypt) and one that did not (Morocco). A brief fourth section will summarize all findings by highlighting which hypotheses were corroborated and discussing corresponding implications for my theoretical assumptions. Finally, various goodness-of-fit tests are conducted to assess the predictive power of the models.

Table 4.1: Arab Spring Participation including Facebook (Binary Logistic Regression)

	Algeria	Jordan	Tunisia	Yemen
Motivations				
Equal Treatment	-0.18	-0.93**	-0.27	-0.03
	(0.64)	(0.40)	(0.25)	(0.35)
Unemployment	0.59	-18.28	0.69*	0.84 †
	(1.21)	(9,392.80)	(0.41)	(0.57)
Youth	0.92	1.12	0.96 †	-0.29
	(1.37)	(0.89)	(0.59)	(0.74)
Unemployment*Youth	-0.77	18.06	-0.86 †	-0.78
	(1.57)	(9,392.80)	(0.57)	(0.87)
Higher Education	-1.11	0.39	0.53**	0.78*
	(0.85)	(0.46)	(0.27)	(0.46)
Free Expression	-0.94 †	0.23	0.61*	0.50
	(0.58)	(0.44)	(0.35)	(0.36)
Qur'an Reading				
...Sometimes	-0.81	0.69	-0.68	-0.72*
	(0.68)	(0.78)	(0.66)	(0.43)
...Most of the time	-1.48 †	-0.41	-0.02	0.37
	(1.01)	(0.83)	(0.65)	(0.45)
...Always	-1.69	0.16	-0.41	0.78 †
	(1.60)	(0.81)	(0.64)	(0.51)
Opportunities				
Political Party	-18.35	5.32***	1.02 †	0.95***
	(12,431.83)	(1.61)	(0.67)	(0.35)
Civil Organization	1.78	1.01	3.56*	0.91 †
	(34,912.47)	(1.04)	(1.86)	(0.59)
Facebook	1.24	0.51	0.20	-0.004
	(1.04)	(0.49)	(0.29)	(0.40)
Friday Prayers				
...Sometimes	-0.65	0.15	0.54	1.13
	(0.99)	(0.79)	(0.41)	(1.12)
...Most of the time	0.09	-0.54	0.11	1.43
	(0.85)	(0.93)	(0.51)	(1.08)
...Always	-0.10	0.04	0.54*	1.94*
	(0.94)	(0.66)	(0.33)	(1.08)
Controls				
Age	0.10	0.09	-0.17	-0.14
	(0.35)	(0.19)	(0.12)	(0.23)
Age²	-0.001	-0.001	0.002	0.002
	(0.005)	(0.002)	(0.002)	(0.003)
Gender	1.55**	0.55	0.91***	-1.05***
	(0.74)	(0.51)	(0.29)	(0.36)
Political Interest	-0.19	0.62	1.14***	0.95***
	(0.96)	(0.45)	(0.28)	(0.34)
Constant	-5.33	-6.16 †	-0.15	0.45
	(6.41)	(3.77)	(0.25)	(4.16)
Observations	307	635	300	326
Pseudo R^2 (Nagelkerke)	0.21	0.22	0.27	0.35

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01.*
† refers to near 90% statistical significance (or above 85%; p<0.15)

Table 4.2: Arab Spring Participation (Binary Logistic Regression)

	Algeria	Jordan	Tunisia	Yemen
Motivations				
Equal Treatment	-0.87	-1.74***	-0.63**	-0.73 †
	(0.73)	(0.58)	(0.28)	(0.50)
Unemployment	0.24	-18.55	0.71 †	0.75
	(1.20)	(8,456.96)	(0.47)	(0.82)
Youth	1.36	2.22 †	0.83	-0.32
	(1.50)	(1.28)	(0.67)	(1.06)
Unemployment*Youth	-0.24	17.46	-0.27	-0.39
	(1.57)	(8,456.96)	(0.64)	(1.28)
Higher Education	-0.20	0.85	1.01***	1.03*
	(0.84)	(0.66)	(0.30)	(0.57)
Free Expression	-0.69	0.54	0.42	0.35
	(0.66)	(0.60)	(0.35)	(0.49)
Qur'an Reading				
...Sometimes	-2.03**	-0.07	-0.91	-0.66
	(0.82)	(0.92)	(0.65)	(0.61)
...Most of the time	-1.48*	-1.70 †	-0.04	1.19*
	(0.87)	(1.07)	(0.64)	(0.66)
...Always	-1.43	-2.00**	-0.67	0.91
	(1.65)	(1.00)	(0.63)	(0.66)
Opportunities				
Political Party	-18.92	5.23***	0.44	0.91*
	(16,915.97)	(2.16)	(0.77)	(0.47)
Civil Organization	2.51	0.05	21.61	0.78
	(36,748.88)	(1.58)	(17,011.51)	(0.72)
Internet for Politics	-0.98	1.73***	0.94***	1.38***
	(1.29)	(0.65)	(0.30)	(0.50)
Friday Prayers				
...Sometimes	-1.54	18.23	1.03**	0.97
	(1.41)	(3,863.71)	(0.45)	(1.66)
...Most of the time	0.09	16.53	-0.08	2.17
	(0.92)	(3,863.71)	(0.52)	(1.54)
...Always	-0.68	18.36	0.43	2.66*
	(1.08)	(3,863.71)	(0.37)	(1.54)
Controls				
Age	0.48	0.25	-0.18	-0.24
	(0.49)	(0.27)	(0.14)	(0.29)
Age^2	-0.007	-0.003	0.003 †	0.003
	(0.007)	(0.003)	(0.002)	(0.004)
Gender	1.82**	0.33	1.02***	-1.21**
	(0.85)	(0.72)	(0.32)	(0.51)
Constant	-9.49	-26.27	0.46	1.44
	(7.97)	(3,863.71)	(2.82)	(5.58)
Observations	257	511	252	228
Pseudo R^2 (Nagelkerke)	0.27	0.42	0.31	0.47

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01.*
† refers to near 90% statistical significance (or above 85%; p<0.15)

4.1 Results

Table 4.1 presents the results of the binary logistic regressions for participation in the Arab Spring in wave 3. The variable *Facebook* appears to have no explanatory power for Arab Spring participation. As argued in the previous chapter, using Facebook could be associated with entertainment rather than a discussion of political issues (Melki, 2010). Thus, I replace *Facebook* with the alternative variable of *using internet for political purposes.* This change of variables is also reasonable if taking into account recent data on social media usage, which shows that a median of 34% of social network users said they shared views on politics online, with that figure being even higher in Arab countries like Tunisia or Jordan (Pew Research, 2013a). Logically, a person that uses internet for political matters must implicitly be interested in politics. Thus, the new media variable accounts for the formerly control variable of *political interest.* This is also indicated by the relatively high correlation (Pearson r=0.61) of these variables. Correspondingly, I drop the *political interest* control variable to avoid multicollinearity. The ensuing discussion focuses on the new findings, outlined in Table 4.2.[44]

4.2 Findings and Discussion

4.2.1 Motivational Factors

Among all countries, the perception of being treated equally appears to be negatively related to Arab Spring participation. This finding reflects prior expectations of **Hypothesis 1**, which presumed that the perception of being treated *less* equal compared to other citizens induces protest participation. This variable is statistically significant for Jordan at a 99% confidence level and for Tunisia at a 95% confidence level. As discussed in the previous chapter, exponentiating the beta values in Table 4.2 allows for a proper interpretation. For Jordan, the odds of participating in protests are 0.83 (Calculation: 1-(exp(-1.76))) times less likely for citizens who perceived themselves as being treated equally compared to those that perceived themselves as being treated unequally, while controlling for other variables. With a large Wald statistic and a correspondingly high significant p-value, we can be very confident (99%) in this result. For Tunisia, the odds of protest participation are 0.44 (Calculation: 1-(exp(-0.58)))

[44] Note: Some coefficients and corresponding standard errors are very large, which indicates that the iteration process of the maximum likelihood estimation could not predict the best model. This means parameters are not converging for respective variables. Increasing the number of iterations did not produce different results. I found these failures of convergence to be the result of quasi-complete separation (by running regressions leaving the respective variables out). Since the predictor variables are still relevant for other countries, I decided to leave them in and report results, interpreting them with caution. For more details, see Allison, 2008; Field, 2009:274-5.

times less likely for people who perceived themselves as being treated equally compared to other citizens than those that perceived themselves as being treated unequally, holding everything else constant. The significance level indicates that we can be 95% confident in the accuracy of this result for Tunisia. For Yemen, the significance level is very close to 90%, and the odds of Arab Spring participation correspond to 0.52 (Calculation: 1-(exp(-0.73))) times less likelihood for Yemeni who perceived themselves treated equally, ceteris paribus.

This indicates that feelings of relative deprivation as a cause of perceived unfair treatment were motivational triggers for protest participation in Jordan, Tunisia, and Yemen. For Algeria, perceptions of unequal treatment appear to play no significant explanatory role. However, we have to be cautious of overestimating this result, as Algeria has the lowest variation on the dependent variable; with only 46 out of 1135 respondents stating that they participated in the Arab Spring (Table A.2).[45]

Thus, in at least three Arab countries, measures of inequality in form of perception of unequal treatment appear to have played an important part for Arab Spring participation. These findings indicate that Hypothesis 1 is predominantly supported. This result is in line with the argument that subjective perceptions rather than objective or aggregate realities promote grievances that lead to action. However, I do not intend to underplay the role of the latter. Indeed, it would be premature to deny the importance of established aggregate contentions, such as Yitzhaki's (1980) argument which states that measures of aggregate relative deprivation can be expressed as the product of the Gini coefficient and the mean income. But while those measures account for *some* explanations, subjective feelings of relative deprivation appear to play *at least* a supplementary part to explain protest participation. This is further highlighted by Breisinger et al.'s (2012:28) findings that poverty and income inequality levels in the Arab countries are higher than official numbers suggest; in particular, inequalities regarding employability prospects between age groups (young versus old) and along the gender divide are among the highest on the globe. Hence, frustrations due to perceived inequalities seem to have played an essential role in Arab Spring participation. In Tunisia, for example, a report in 2006 indicated that over half of Tunisian elites were personally related to Ben Ali, reflecting systematic nepotism throughout Tunisians civil society – causing feelings of relative deprivation which eventually lead to widespread demands for equal treatment (Anderson, 2011).

[45] Similarly, results for Jordan should be viewed in a correspondingly cautious approach.

Hypothesis 2 presumed that unemployed young citizens were more likely to participate in the Arab Spring. This hypothesis cannot be confirmed by the results of Table 4.2. Only in Jordan, youth is near 90% statistically significant; and unemployment is near statistically significant for Tunisia. This could indicate, for instance, that unemployed young Tunisians were 1.55 (Calculation: exp(0.71-0.27)) times more likely – to participate in the Arab Spring than their counterparts, ceteris paribus.

Overall however, there is little support for Hypothesis 2. This does not dispel the youth bulge argument per se, but indicates a previous overstatement by academia in regards to its relevance in the Arab Spring.[46] el-Meehy (2014:5) argues, for example, that the youth bulge argument is empirically inaccurate since the demographic peak of youth in the Arab region has already passed and corresponding dependency ratios have started to decline. And even if the youth bulge plays a determinant role, this must not be solely the result of dissatisfaction with unemployment. Ben Moussa (2013:55) argues that young people are also protesting "against political, social and cultural conservatism and stagnation, as well as older generations' and elites' preference for a status quo and compromise." As respect for elderly people is sacrosanct in the region, the youth faces deeply rooted cultural barriers to expand their ideas and creativity (Ibid).[47] Thus, the protests must not have been necessarily led by young people; and even if that was the case, these young Arabs must not have been necessarily deprived due to hardships of unemployment – but other, more profound obstacles like social marginalization.

The educational variable testing **Hypothesis 3** appears mostly positively related to Arab Spring participation. This reflects the presumed causal direction of better educated citizens being more prone to participating in protests. Higher education is statistically significant for the countries that experienced regime change, Tunisia and Yemen, with 99% and 90% confidence levels, respectively. This means that Tunisians and Yemeni who possessed higher educational achievements (diploma, Bachelor, MA or above) were 2.75 and 2.80 times more likely to participate in Arab Spring demonstrations than their counterparts that had only secondary or less education, respectively and ceteris paribus. Education is neither statistically significant for Algeria nor for Jordan. The significant result for the case of Tunisia appears reasonable because the country possesses arguable one of the best educational systems in the Arab region, which produced many educated citizens that might have felt the repression of Ben

[46] The Brookings Institution provides an interactive map for Youth Labor Force Participation in the MENA-region: http://www.brookings.edu/research/interactives/2014/arab-world-learning-barometer
[47] For a more comprehensive review of youth movements in the Arab region, see Herrera and Bayat, 2010.

Ali's tightly restricted rule (Anderson, 2011). For Yemen, the result should be considered with more caution. As Yemen is the poorest country in the Arab world – which implies low educational standards – the overall number of higher level graduates is relatively low (about 5% compared to about 20% of the other countries). Nevertheless, the overall tendency of better education promoting protest participation is in line with the assumptions made by Runciman. As argued in the theoretical chapter, Runciman linked the feeling of relative deprivation to more general, objective inequality such as class, wealth, power, etc. which are embodied in society implicitly (Akpeninor, 2012:538). Runciman (1966:92) found that self-perceived deprivation and objective inequality must not correlate, but can even contradict each other. This means that while overall inequality within a society might be decreasing, relative deprivation can simultaneously increase (Ibid:96). He further asserted that better educational achievements can increase the sense of relative deprivation (Ibid:102). For the two cases that experienced regime leadership change, my results for education appear to correspond with Runciman's findings: Higher levels of education seem to cause more intense feelings of relative deprivation that are reflected in the increased likelihood of Arab Spring participation. Thus, Hypothesis 3 is supported for Tunisia and Yemen, but not for Algeria and Jordan.

The perception of lacking freedoms to express opinions was depicted in **Hypothesis 4**. However, freedom to express opinions appears to have no statistically significant causal relation with protest participation in the Arab Spring. This result is somewhat surprising, as one of the two main reasons for the occurrence of the Arab Spring as cited by respondents in the four respective countries were "civil and political freedoms, as well as emancipation from oppression" (see Table A.11 in the Appendix). This non-significance of the politically-motivated factor of freedom to express opinions suggests that socio-economic motivations, such as perception of unequal treatment due to unfair food or fuel prices, job opportunities or wages, and so forth, played a more dominant role in promoting Arab Spring participation. As Tables 4.3 and 4.4 below will show, however, we should not prematurely dismiss this politically-motivated variable of free expression yet.

The final motivational variable included in my model tests for robustness of Hoffman and Jamal's (2014) account on *individual* religiosity promoting protest participation, which was established by **Hypothesis 8**. In an earlier study, Hoffman and Jamal (2012) investigated the impact of youth cohorts in the Arab Spring and found – unlike expected – that although the younger population tends to be less religious, "young Arabs are generally more supportive of political Islam than their older counterparts, and tend to support Shari'a law more than older

citizens do" (Ibid:184). As many protesters were arguably young Arabs, Islam in particular appeared to have offered an ideological impetus for protest mobilization, bridging class divisions and connecting people from all parts of society (Ardiç, 2012, Hoffman and Jamal, 2014). Slogans like "God is Great" and other Islamic rhetoric seemed to have transformed faith into a motivational wheel to spur protest movements (Eghdamian, 2014). This suggests that religion represents a part of the Arab struggle for justice.

Table 4.2 shows that individual piety measured by the frequency of reading the Qur'an is overall significantly related to Arab Spring participation among Algeria, Jordan and Yemen, but not Tunisia. Moreover, the causal direction for Yemen appears to be positive, while Algeria and Jordan show a negative relationship. This could suggest that for countries which did not experience regime leadership change, rather a decrease than an increase in the frequency of Qur'an reading moved Arabs to participate in protests and demonstrations.[48] For Algeria, citizens who read the Qur'an *sometimes* or *most of the time* were 0.87 and 0.77 times, respectively, less likely to participate in the Arab Spring compared to Algerians who *never or rarely* read the Qur'an, ceteris paribus. Jordanians who *most of the time* or *always* read the Qur'an were correspondingly 0.82 and 0.86 times less likely to participate in comparison to those that *never or rarely* read the Qur'an, ceteris paribus. For Yemen, however, the positive relationship indicates that citizens who read the Qur'an *most of the time* were 3.29 times more likely to participate in protests than those who read the Qur'an *never or rarely*, ceteris paribus.

These results diverge from the presumption made in Hypothesis 8. An explanation for the divergent outcomes might be grounded in the fact that the findings reflect the diversity of religious commitment in the Arab world and its complex role in promoting people's desires for change (Pew Research Center, 2012). At least in the Western media, the Arab Spring was depicted as a struggle for democratization. But among other scholars, Tessler (2004) argues that religious piety in the sense of Islamic attachment cannot be strongly associated with political opinions such as the demand for more democracy.[49] Islam and democracy (the latter as especially in the traditional Western sense established through secularization) are often argued to be incompatible and incapable to coexist, as the place of Islam in the modern nation-state has still not been resolved (WFD, 2014). In many Arab societies, *secularism* is therein a taboo

[48] This could also just be a result of Yemen having a large part of the population being illiterate and thus simply unable to read the Qur'an (see adult literacy rate, Table A.10 in the Appendix).
[49] I focus on Islam because the majority (over 90%) of the population of most MENA countries is Muslim (Pew Research Center, 2009). Also, in all surveyed countries (except Lebanon) of the Arab Barometer wave 3, the majority of respondents (>90%) were Muslims (AB, 2014).

word and practicing Muslims do not want Islam in politics (Ibid). But the traditional (Western) tendency to relate democracy with secularization appears misleading in the context of the Arab region.[50] For instance, Filali-Ansary (2012) contends that many revolutionary Arabs strive for a fusion between Shari'a law and democracy.[51] While demanding more rights – which is often associated with favouring democratization – Arabs do not appear to want to move away from religion, but hope to attain some kind of arrangement between democracy and Shari'a law (Hoffman and Jamal, 2014:605).

This posits a puzzle that requires rethinking of the traditional relationship between democracy and religion in the Arab region. As argued in the previous chapters, most scholars suggest that the Arab Spring is manifested in demands for democratic values and governance (Arab Reform Initiative, 2014). As Figures A.4 and A.5 in the Appendix illustrate, however, there was an overall decline in the perception of respondents' home countries being democratic as well as perceiving democracy being suitable for the countries (except for Algeria, which can be explained by the fact that Algerian public opinion is changing on multiple issues in recent years).[52] This suggests that democracy was not necessarily a key demand in the uprisings by itself, but rather an implicit side effect of the struggles to overcome perceived inequalities, such as unequal treatment. The struggle for democracy in the Arab world is therein not necessarily a means to an end, but an end in itself; notably one that does not have to contradict the deeply-seated cultural and religious foundations of Arab countries. That argument is supported by Figure A.6 in the Appendix, which further highlights that participation in the Arab Spring was not based on the perception that democracy contradicts the teachings of Islam.

Furthermore, the diverging effect of religion in different Arab countries might also be a result of a contemporary crisis between religious leadership and authority in the Arab region. Traditional leaders are being increasingly challenged by more and more educated, literate-affluent populations with access to religious knowledge and philosophical sophistication (WFD, 2014). Any mid-ranking cleric of either Sunni or Shia camp can, with the help of new social media and corresponding internet tools, such as Youtube, easily undermine the ecumenical efforts made by more senior figures (Ibid). As *everybody* seems to be quoting God, many Arabs are skeptical about which interpretation is actually authoritative. Therefore, charismatic

[50] el-Nawawy and Khamis (2009:30-2) argue in their study of online Islamic discourse, for example, that "Habermas' original distinction between private and public sphere reflects a Eurocentric bias that does not necessarily apply to the experience of Muslim-majority societies and to Islam as a religion that questions any rigid division between the two realms." (Ben Moussa, 2013:49).
[51] For more information on the Islam-Democracy nexus, see also Tessler (2002).
[52] For a more comprehensive review of Algerians transition, see among others Robbins, 2014.

religious leaders become increasingly important. The same goes for religious organizations in which ordinary people have much more voice and choice nowadays; which will be discussed in more detail below in regards to Hypothesis 7 (Ibid).

4.2.2 Opportunistic Factors

Regarding opportunistic elements that facilitated Arab Spring participation, **Hypothesis 5** stated that being a member of a political party would enhance the likelihood of Arab Spring participation. Political party membership is positively related with protest attendance for Jordan and Yemen.[53] For Jordan, membership in a political party increased the odds of participating in the Arab Spring vastly by 186.79 times over non-membership, ceteris paribus. For Yemen, the corresponding increased likelihood was 2.48 times compared to non-members. This result suggests that political party membership can, but not must, promote protest participation through opportunities to interact on political platforms and arenas. Hypothesis 5 is therein at least to some extent supported.

Hypothesis 5 also contended that being a member in a civil organization promotes Arab Spring participation as well. Membership in a civil organization appeared to be positively related, as presumed, but overall non-significant. However, the lack of variance on this variable as indicated by the distributions in the methodology chapter makes it also difficult to assess any real impact of this variable, for now.

Hypothesis 6 established another opportunistic platform for promoting Arab Spring participation, namely new social media. Unlike the initial (non-significant) social media variable of Facebook in Table 4.1, the *usage of internet for political matters* appeared positively and strongly associated with Arab Spring participation. Except for Algeria, all countries have a significant positive causal relationship of internet usage for political matters with the protest participation. For Jordan, Tunisia, and Yemen, using the internet increased the likelihood of participating in the Arab Spring by 5.64, 2.56, and 3.97 times, respectively and ceteris paribus. These results reflect the presumed assumption of new social media, or more particular the internet, playing an essential role in facilitating protest movements; while the often proposed "Facebook-Revolution"-analogy appears misplaced in the context of the Arab Spring. Thus, Hypothesis 6 stating that new social media platforms such as the internet facilitated Arab Spring participation is supported.

[53] However, the Algerian result should be viewed cautiously, as there were no observations for citizens being both member of a political party and protest participant.

The opportunistic factor of a more frequent attendance at religious meetings, such as Friday Prayers, promoting protest participation was presumed in **Hypothesis 7.** The variable that accounts for the frequency of the attendance at such rallying points is only significant for countries that experienced regime change, Tunisia and Yemen. The causal direction is, as expected, positive in both cases. For Tunisia, attending Friday prayers *sometimes* rather than *rarely or never* increased the odds of participating in the Arab Spring by 2.43, ceteris paribus. Yemeni who attended Friday prayers *always* were 11.39 times more likely to participate in the Arab Spring than those who attended them *rarely or never*, ceteris paribus.

Compared to Qur'an reading, the alternative measure of religiosity as in mosque attendance appears to have had a stronger impact of promoting Arab Spring participation. This argument only holds for Tunisia and Yemen though. Thus, it appears that only in countries that experienced the removal of former presidents, religious meetings that served as rallying points for protesters played an essential part in encouraging participation in the Arab Spring. It is possible that those meetings at religious institutions and platforms not only supported participation through rallying citizens, but also encouraged a psychological pervasion of a changed quoting mechanism through high-ranking clerics, manifesting in a re-interpretation of the Qur'an in favor of protesting to demand leadership change. This might also explain the unique *positive* direction of more frequent Qur'an reading promoting Arab Spring participation in Yemen.

Nonetheless, for Tunisia and Yemen the support of Hypothesis 7 indicates an active role of religious institutions as a platform for meetings and providing opportunities in forming collective liberation ideologies and activism, as suggested by Eghdamian (2014). In order to promote participation in Arab movements, Friday prayers appear to have been used as rallies to motivate old as well as new citizens to join the movements (Ibid). Religion functioned therein as mobilizing factor in Tunisia and Yemen, providing platforms for citizens to interact with each other through the attendance at Friday prayers, the use of mosques and participating in Islamic discourses around martyrdom (Benhabib, 2011; Ardiç, 2012; Halverson and Ruston, 2013). Support for the Arab protests in Yemen and Tunisia appeared to have been fostered through the frequent contact between members of religious groups through their pre-existing social networks, as well as the provision of trained leadership and moral justification in form of facilitating the legitimizing element of the movements (Beckford, 2001, Smith, 1996:9).

4.2.3 Control Variables

Among the control variables, age appears to have no confounding effect on Arab Spring participation at a 90% confidence level, while gender does. In Algeria and Tunisia, men were more likely to participate in the protests than women by an odds ratio of 6.17 and 2.77, respectively and ceteris paribus. Yemeni men, on the other hand, were 0.70 times less likely to participate in the Arab Spring than women were, ceteris paribus. In fact, there was an unprecedented civic engagement by Yemeni women, facilitated in supportive (providing food/water or volunteering at field hospitals) as well as participative, organizational and lobbying roles. This might be due to the fact that Yemen has the worst gender gap index among Arab countries (see Table A.10 in the Appendix), moving Yemeni women being most desperate in their desire for change and gender emancipation.

4.3 Adjusting for Potential Time Lags – Comparing the Findings with Data from AB Wave 2

As highlighted by the operationalization of the dependent variable in the previous chapter, I employ the second wave of the Arab Barometer to adjust for potential time lags. The interviews of wave 2 were conducted in December 2010 in Jordan and throughout 2011 in the other three countries, which might indicate a more direct link of immediate frustrations or feelings of relative deprivation resulting in protest behavior. As mentioned in the previous chapter, the dependent variable of wave 2 does not directly measure Arab Spring participation, but rather participation in *protests, marches, or sit-ins* during the *past three years.* This means that the results do not account solely for protests referred to as the Arab Spring (that began in the end of 2010 in Tunisia and which did not spread to many other countries before 2011), but prior protest movements as well (especially for Jordan, since interviews here were conducted in late 2010). With this limitation in mind, Table 4.3 provides the new findings regarding wave 2.

Table 4.3: Protest Participation of Wave 2 (Binary Logistic Regression)

	Algeria	Jordan	Tunisia	Yemen
Motivations				
Equal Treatment	-0.37*	-0.89***	-0.58**	-0.29
	(0.22)	(0.31)	(0.27)	(0.33)
Unemployment	0.38	-0.42	0.02	0.30
	(0.37)	(1.02)	(0.47)	(0.57)
Youth	-0.32	1.27**	1.14**	0.06
	(0.46)	(0.62)	(0.56)	(0.58
Unemployment*Youth	-0.34	-1.43	-0.29	-1.26
	(0.56)	(1.44)	(0.65)	(0.87)
Higher Education	0.05	0.25	-0.01	0.27
	(0.21)	(0.32)	(0.27)	(0.32)
Free Expression	0.17	-0.12	0.61**	-0.58*
	(0.22)	(0.31)	(0.29)	(0.30)
Qur'an Reading				
...Sometimes	0.55**	1.13*	0.19	0.57
	(0.27)	(0.66)	(0.49)	(0.71)
...Most of the time	0.46 †	0.62	0.41	0.94
	(0.31)	(0.68)	(0.52)	(0.71)
...Always	0.20	1.09 †	0.94 †	0.68
	(0.37)	(0.68)	(0.58)	(0.71)
Opportunities				
Political Party	1.38***	1.95**	1.50**	1.12***
	(0.50)	(0.81)	(0.62)	(0.32)
Civil Organization	0.62 †	0.91	0.38	1.22***
	(0.42)	(0.95)	(0.83)	(0.43)
Internet for Politics	1.04***	0.78**	0.86***	0.75**
	(0.25)	(0.34)	(0.27)	(0.30)
Friday Prayers				
...Sometimes	0.06	-0.47	-0.22	0.03
	(0.33)	(0.66)	(0.35)	(0.75)
...Most of the time	-0.35	-0.03	-0.02	0.62
	(0.38)	(0.56)	(0.50)	(0.80)
...Always	-0.002	-0.38	0.13	0.25
	(0.28)	(0.53)	(0.38)	(0.60)
Controls				
Age	-0.09	0.18	0.05	-0.06
	(0.08)	(0.13)	(0.12)	(0.17)
Age²	0.001	-0.002	-0.001	0.001
	(0.001)	(0.002)	(0.001)	(0.002)
Gender	0.33 †	1.02***	1.69***	0.98***
	(0.22)	(0.39)	(0.32)	(0.34)
Constant	-0.37	-7.21***	-3.94*	-1.38
	(1.61)	(2.67)	(2.83)	(3.10)
Observations	659	491	382	294
Pseudo R^2 (Nagelkerke)	0.11	0.17	0.27	0.33

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01.*
† refers to near 90% statistical significance (or above 85%; p<0.15)

4.3.1 Motivations

The results show that perception of equal treatment is mostly significant and negatively related to protest participation, though slightly weaker. This variable is now also significant for Algeria and still significant for Jordan and Tunisia, but not for Yemen, which suggests that feelings of relative deprivation assume a relevant role in explaining protest participation on average. Thus, these results indicate further overall support for Hypothesis 1.

Regarding Hypothesis 2, it appears that youth unemployment had a diverging impact on Jordan and Tunisia. In Jordan, young unemployed citizens appear to have been 0.15 times (Calculation: 1-(exp(1.27-1.43))) less likely to participate in protests, ceteris paribus. On the other hand, young unemployed Tunisians were 2.34 times (Calculation: exp(1.14-0.29)) more likely to participate in protests, ceteris paribus. For Yemen and Algeria, youth unemployment appears to be non-significant. This suggests that Hypothesis 2 is only somewhat supported.

Better educational achievement appears to have no significant explanatory power on protest participation. Thus, there is no support for Hypothesis 3.

Hypothesis 4 is only supported for Yemen and Tunisia. Thus, the perception of having freedom to express opinions guaranteed is significantly influencing protest behavior in the countries that experienced regime change. In Yemen, the relationship is, as expected, negative which indicates that having more freedoms guaranteed made citizens 0.44 times less likely to participate in protests, ceteris paribus. Thus, a lack of perceived freedoms spurred protest in Yemen. In Tunisia however, the *positive* relationship suggests that citizens who perceived their freedoms to be guaranteed were 1.84 times more likely to protest, ceteris paribus. This indicates that the developmental status of a country might impact the motivations for protest participation. Tunisia's general living standards are among other development indicators much better than those of Yemen (see Table A.10 in the Appendix). Hence, general liberties such as free voting are less likely to be available in countries like Yemen than in Tunisia. Accordingly, Tunisians might have used these preexistent structures of freedom to act and speak to organize and advance their protest activities – reflecting the positive causal direction of the variable. On the other hand, Yemeni could have felt deprived of not being able to access such free structures and opportunities; correspondingly they protested for attaining these, indicating the negative causal relationship.

Concerning Hypothesis 8, Qur'an reading remains significant for Algeria and Jordan (and close to significant for Tunisia) in explaining protest participation. But the causal direction is now positive. This change is in line with the findings of Hoffman and Jamal (who also used the second wave of the Arab Barometer). In Algeria, people that read the Qur'an *sometimes* or *most of the time* were 1.73 and 1.58 times more likely to participate in protests than those who read the Qur'an *rarely or never*, respectively and ceteris paribus. In Jordan, citizens who read the Qur'an *sometimes* and *always* were 3.10 and 2.97 times more likely to participate in protests compared to those who *never or rarely* read it, respectively and ceteris paribus. Tunisians who read the Qur'an *always* as compared to *never or rarely* were about 2.56 times more likely to participate in protests, ceteris paribus. The change in the causal direction might indicate that *general* protest participation (wave 2) was spurred by individual piety in some Arab countries, while Arab Spring participation (wave 3) was less driven by religious affiliations of Qur'an reading. As the variable of Qur'an reading is significantly contributing to protest participation in almost all of the selected countries, Hypothesis 5 is overall supported by the results of wave 2.

4.3.2 Opportunities

The wave 2 results regarding opportunities suggest that membership in political parties as well as usage of internet are significantly positive related to protest participation in all four countries, thus supporting Hypotheses 5 and 6. Being a member in a political party increased the likelihood of participating in protest by about 3 to 7 times, and using the internet for political matters increased it by about 2 to 3 times, ceteris paribus. Membership in civil organization was also significant for Yemen and close to significant for Algeria, increasing the corresponding odds of protesting by about 3.4 and 1.9 times, respectively. These findings further support Hypotheses 5. Attending Friday prayers did not contribute significantly to protest participation in any of the countries, contradicting Hypothesis 7 and therein confirming the results of Hoffman and Jamal's (2014) article. Overall, the opportunistic factors of being a member in a political party and using the internet for political purposes appear to play a significant role vis-à-vis grievance-based motivations for protest behavior in the region generally.

4.3.3 Control Variables

For wave 2, age seemed to assume no significant role once again. Gender, on the other hand, appears to be significantly positively related to protest participation in all four countries. In Algeria, Jordan, Tunisia, and Yemen, men were about 1.4, 2.8, 5.4, and 2.7 times more likely to protest than women, respectively and ceteris paribus. This confirms the assumed gender inequality factor of women not participating in public sphere as much as men (due to status, guardianship, etc.), which is especially prevalent in the Arab region (see also Table A.10 in the Appendix).

4.4 Improving Results – Taking *New Social Media* Out

As indicated by Model 1 and Model 2, Facebook appears to have no significant effect on protest participation, while the usage of internet for political matters seems to be significantly increasing the likelihood of participating in protests. However, one needs to be cautious with these results. In my opinion, social media can have diverging effects, as each country possesses a unique developmental status that includes corresponding access limitations, such as broadband coverage or the number of citizens able to access the internet. The social media indicators in Table A.10 in the Appendix show, for example, that Yemen is much less developed in that area (among others) than other Arab countries. Thus, it is difficult to verify that new social media is a determinant factor for protest participation in countries that have low levels of internet penetration and access structures. Another problem relates to whether (and to what extent) the government controls the internet infrastructure through censorship, which includes blocking or privatizing webpages. These limitations indicate that the new social media variable could have a strong impact on the results for countries like Yemen, possibly introducing bias.

Further, it is important to recall that new social media plays a more accelerating than causal role in regards to protest participation.[54] While using the internet – or new social media in general – can facilitate democratic movements to resist authoritarian regimes, it will not lead to the same outcome in every Arab country (Samin, 2012). One cannot simply comprehend the role of social media in political struggles without first understanding the political context it is operating in. The impact of new social media should thereby be based on underlying so-

[54] For a more comprehensive review of the debate on new social media's role in the Arab Spring, see among others: Asseburg, 2012; Ben Moussa, 2013; Brown et al., 2012; Eltantawy and Wiest, 2011; Howard, 2011; Wihbey, 2013; Wharton, 2012.

cial and political dynamics of individual countries (Ibid). This argument is further highlighted by a widely cited aphorism: "Twitter doesn't cause revolutions, but revolutions are tweeted" (Lynch, 2011). In the same vein, scholars like Shirky (2011) or El Difraoui (2012) contend that revolutions do not depend on society adopting new tools, but society adopting new behaviors. Bishara (2012:92) supports this view by arguing that there was vast overemphasis of new social media, which, "all the while ignoring other components of the revolutions, became a cliché intended to fascinate and entertain, not to inform."

This is not to say that we should neglect the role of new social media completely, as it has allowed diverse segments of society to access and produce information, narratives and frames that reorganize collective identities or the meaning of citizenship; and therein reshape power relations between gender, ethnic and religious groups and generations (Ben Moussa, 2013:56). But rather acknowledging its supportive rather than deterministic impact, the potential problem of an *endogenous* causal relationship with protest participation adds to the challenges of new social media's role in the Arab uprisings. Endogeneity means that the dependent variable (protest participation) might cause the independent variable (usage of social media), reflecting the inverse causal direction of a prior assumed exogenous flow. Indeed, it is very likely that protest attendants used online tools to keep up to date with regional events *after* they participated in protests (Wolfsfeld et al., 2013).

These challenges of endogeneity and the diverging impact of internet in different countries (due to different developmental status, for instance) support the argument of re-running regressions without a new social media variable. The results of such regressions will further benefit from increased number of observations, because the previous regressions (Tables 4.1 to 4.3) only included respondents that used the internet. This is because respondents were priorly asked how frequently they use the internet, and those respondents who answered *I do not use the internet* were subsequently not asked the questions on the two variables of Facebook and internet usage for political matters that I included in the models so far.

To further adjust for the stability of the results, I decided to include two more cases: Morocco and Egypt. I do this mostly to account for the limited results of the case of Algeria, as it has the lowest number of actual Arab Spring participants among the selected cases, as well as low variation on other explanatory variables that might impact the reliability of the results.[55]

[55] Extreme splits on the frequency distribution of either the dependent or independent variables can often lead to convergence failure in logistic regression (Allison, 2008:5).

Table 4.4: Arab Spring Participation (excluding Social Media)

	Algeria	Jordan	Morocco	Tunisia	Yemen	Egypt
Motivations						
Equal Treatment	-0.43	-0.75**	-1.26***	-0.39**	-0.26	0.08
	(0.43)	(0.35)	(0.31)	(0.19)	(0.19)	(0.25)
Unemployment	-0.23	-0.38	0.20	0.24	0.88**	0.69
	(0.84)	(1.05)	(0.53)	(0.29)	(0.37)	(0.58)
Youth	0.85	1.92**	1.13*	1.38***	0.11	0.95 †
	(0.90)	(0.81)	(0.66)	(0.43)	(0.36)	(0.58)
Unemployment*Youth	-0.57	0.19	0.15	-0.76*	-0.55	-1.71*
	(1.23)	(1.25)	(0.70)	(0.45)	(0.57)	(0.93)
Higher Education	0.05	0.97***	0.33	0.84***	0.59*	0.58**
	(0.49)	(0.38)	(0.41)	(0.22)	(0.35)	(0.27)
Free Expression	-0.67*	0.05	-0.47 †	0.21	0.61***	-0.73***
	(0.41)	(0.38)	(0.30)	(0.25)	(0.18)	(0.27)
Qur'an Reading						
...Sometimes	-0.38	0.97	-0.35	0.41	-0.74***	-1.71***
	(0.44)	(0.77)	(0.46)	(0.49)	(0.24)	(0.51)
...Most of the time	-2.18***	0.25	-0.54	0.64	-0.12	-0.65 †
	(0.76)	(0.78)	(0.50)	(0.48)	(0.24)	(0.45)
...Always	-2.62**	0.64	-0.66	0.31	0.17	-1.11**
	(1.49)	(0.79)	(0.54)	(0.47)	(0.25)	(0.47)
Opportunities						
Political Party	-17.81	5.00***	1.91***	1.03**	0.89***	1.56***
	(7,656.89)	(1.40)	(0.57)	(0.52)	(0.17)	(0.45)
Civil Organization	-0.71	1.03	-1.22	3.25***	1.46***	-0.91
	(33,510.57)	(0.97)	(0.99)	(1.13)	(0.42)	(2.17)
Friday Prayers						
...Sometimes	-0.64	-0.26	-0.43	0.02	0.47	2.00**
	(0.66)	(0.67)	(0.55)	(0.32)	(0.41)	(1.00)
...Most of the time	-0.01	-1.00	-0.32	0.33	0.68*	1.83*
	(0.58)	(0.78)	(0.56)	(0.35)	(0.39)	(0.96)
...Always	-0.45	-0.80	0.02	0.78***	1.04***	1.56*
	(0.63)	(0.55)	(0.52)	(0.24)	(0.37)	(0.94)
Controls						
Age	0.37*	0.18	0.31**	0.03	0.06	0.13
	(0.21)	(0.13)	(0.12)	(0.05)	(0.06)	(0.10)
Age²	-0.005*	-0.002	-0.004***	-0.001	-0.001	-0.002*
	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Gender	1.16**	0.89**	0.15	1.13***	0.29*	1.05***
	(0.47)	(0.43)	(0.31)	(0.21)	(0.17)	(0.29)
Political Interest	-0.05	0.95**	1.59***	1.16***	0.53***	0.93***
	(0.62)	(0.39)	(0.31)	(0.21)	(0.19)	(0.28)
Constant	-8.34**	-8.59***	-7.37***	-4.17***	-2.94**	-6.03***
	(4.08)	(2.92)	(2.55)	(1.34)	(1.36)	(2.28)
Observations	676	1339	776	898	813	817
Pseudo R^2 (Nagelkerke)	0.22	0.23	0.27	0.32	0.29	0.25

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01.*
† refers to statistical significance being very close to p<0.10.
The three countries to the right experienced regime leadership change, while the other three countries did not.

I include Morocco and Egypt to have one additional case for a country that experienced regime leadership change (Egypt) and one that did not (Morocco). Overall, these cases are primarily included to strengthen the confidence in the accuracy of my results.[56] Table 4.4 depicts the findings that exclude the *new social media* variable and account for the two additional countries of Egypt and Morocco.

4.4.1 Motivations

While keeping in mind that the effect of using internet for political matters is significant, as indicated in Table 4.2 and 4.3, I now discuss the improved findings of excluding this variable. The new results are somewhat consistent with what has been identified so far. Grievances through the perception of unequal treatment (Hypothesis 1) compared to other citizens remains significant in promoting Arab Spring participation for Jordan, Morocco and Tunisia. However, the other three countries that do not support Hypothesis 1 do support Hypothesis 4, namely political grievances of being deprived of freedom of expression promoting Arab Spring participation. This suggests that in some countries (Algeria, Yemen, Egypt) Arab Spring participation was rather motivated by perceptions *political* grievances, while in other countries (Jordan, Morocco, Tunisia) perceptions of *socio-economic* inequalities played a more important explanatory part.[57] The results of Table 4.4 are thus in line with Ben Moussa's (2014) findings, which state, for instance, that in Tunisia the lack of jobs and impoverishment were the root causes for protest activity while the Egyptian protests were originally spurred by political grievances.

Youth unemployment (Hypothesis 2) is a significant indicator for protest participation in those countries that experienced protests mostly on socio-economic grievances, namely Jordan, Morocco and Tunisia. This finding makes intuitively sense, as perceptions of socio-economic inequality might have also been caused by being young and unemployed.[58]

Better educational achievement significantly increased the likelihood of Arab Spring participation in most of the countries in Table 4.4, thereby supporting Hypothesis 3. This is greatly

[56] Although included in the Model, goodness of fit and robustness tests will not be included for Morocco and Egypt. Nonetheless, these measures are available on request.

[57] As Table A.11 in the Appendix shows, respondents were asked *Which of the following were the main three reasons that led to the Arab Spring?* The two main reasons were "betterment of the economic situation" and "civil and political freedoms". My results appear in line with these responses. The third most-cited reason, corruption, is excluded in my analysis due to theoretical presumptions of multicollinearity between corruption and freedom to express opinions and/or unequal treatment. This will be tested for in Chapter 5, though.

[58] This does not mean, however, that these variables correlate highly with each other (see Appendix 1).

diverging from the results of Table 4.3, in which higher education was non-significant. These findings suggest that educational achievements have no explanatory power for *general* protest activity in the Arab region (using the alternative dependent variable and wave 2), while they do seem to contribute to explaining Arab Spring participation (using wave 3; Tables 4.2 and 4.4). However, these results might be influenced by potential biases through issues like multicollinearity or the lack of interaction terms; hence, this will be tested for in Chapter 6.

The findings for the religiosity measure of individual piety (Hypothesis 8) are mixed. In line with the results of Table 4.2, reading the Qur'an more frequently made citizens less inclined to participate in the Arab Spring. This was the case in Egypt, Yemen and Tunisia, where more religiously-attached citizens (those who read the Qur'an more frequently) appeared to be less motivated to participate in the Arab Spring. This finding contradicts the results of Table 4.3 and therein the argument made by Hoffman and Jamal (2014). A potential explanation for this divergence might lie in the argument that the countries experienced some reforms and/or upheavals that interrupted the daily routine of Arabs in the time period of 2010/11 (wave 2) to 2013/14 (wave 3), which gave citizens naturally less opportunities or incentives to simply read the Qur'an frequently. Another explanation could be rooted in the upsurge of radical religious groups like ISIL, which might have contributed to a social desire to distance oneself from those groups and correspondingly giving respondents incentives to answer that they read the Qur'an less frequently than they actually do. However, these are only hypothetical explanations and require more detailed investigation by future research.

Eventually, all motivational results are in general quite mixed for countries that experienced regime change vis-à-vis those that did not. It is undoubtedly clear, however, that feelings of relative deprivation played an essential role in *motivating* Arab Spring participation, at least to some extent, in all selected countries.

4.4.2 Opportunities

In regards to the opportunity-based explanations, being a member in a political party appeared to have facilitated protest participation in all countries except Algeria, overall supporting Hypothesis 5. Being a member in a civil organization had the same expected positive effect, but only for Tunisia and Yemen. Participation in religious gatherings, such as Friday prayers, seemed to have facilitated protesting mostly in countries that experienced regime change, such as Tunisia, Yemen, or Egypt (Hypothesis 7). As previously outlined in the discussion of

Table 4.2, this suggests that this opportunistic variable of attending religious meetings might have played an important role in facilitating the ousting of regional leaders. Unsurprisingly, regarding the perception of the outcome of the Arab Spring, more citizens in countries that ousted their rulers (Tunisia and Yemen) felt victorious compared to those that had perceptions or feelings of personal loss; while this was vice-versa for the countries that did not oust their rulers (Algeria and Jordan) – which is depicted in Table A.11 in the Appendix.

Overall, the results are in line with the hypothesized presumptions. They suggest that opportunities, especially being a member of a political party, facilitated the propensity of Arabs to participate in the Arab Spring.

4.4.3 Control Variables

All control variables appear to be essential, as they are all significantly related to protest participation. The negative causal direction of age² indicates that younger citizens were more likely to participate in the Arab Spring than older citizens were. This variable is statistically significant for Algeria, Morocco and Egypt, which suggests that age did not play an overly deterministic role in the other countries. The positive direction of both gender and political interest shows that males were more likely to attend protests than females, as well as that people who are more interested in politics were more likely to participate than those who were not (except for Algeria). These results are in line with prior expectations.

4.5 Bringing It All Together: A Summary of the Findings

To sum up, it appears that both motivations based on feelings of relative deprivation as well as opportunistic elements have promoted Arab Spring participation. Overall, the perception of being treated unequally was the most consistent significant explanatory variable on the motivational spectrum; while being a member of a political party was the most consistent explanation for protest participation among the opportunistic factors. The social media variable of using internet for political purposes was, if included, also a very consistent significant contributor to explaining Arab Spring participation. Table 4.5 provides an overview of these findings, depicting the *aggregate* confirmation or rejection of all hypotheses.

These results indicate that feelings of relative deprivation should not be dismissed so easily in playing a critical part in explaining protest participation, as appears to be often the case in academia. Motivations due to feeling relatively deprived appear to go a long way in contrib-

uting to explaining what moves citizens to participate in protests. But as highlighted here, motivations are not exclusive factors for such phenomena, as they rather complement than contradict opportunistic elements that facilitate protest participation. Thus, there appears to be a need to reconsider the rather perseverant positions of some tenacious parties in both camps (relative deprivation advocates vs. opportunity-based proponents) in academia to move towards a reconciliation of these two theories. I showed here that instead of playing a contradictory role, both relative deprivation and opportunity-based resource mobilization theories complement each other; and these should therefore be used in such a complementary way to analyse real world phenomena like protest participation more accurately.

Table 4.5: Assessment (Confirmation/Rejection/neither) of the Hypotheses

Motivations	**Table 4.2**	**Table 4.3**	**Table 4.4**	**Overall/Aggregate**
Hypothesis 1	✔	✔	~	✔
Hypothesis 2	**X**	~	~	~
Hypothesis 3	~	**X**	✔	~
Hypothesis 4	**X**	~	✔	~
Hypothesis 8	**X**	✔	**X**	**X**
Opportunities				
Hypothesis 5	~	✔	✔	✔
Hypothesis 6	✔	✔	(not included)	✔
Hypothesis 7	†	**X**	†	†

Notes*: ✔ refers to confirmation of a Hypothesis. **X** indicates the rejection of a Hypothesis. ~ means that the Hypothesis can be neither completely confirmed nor rejected (sit-on-the-fence situation). † indicates that there is support for the Hypothesis, but only for countries that experienced regime leadership change (e.g. Yemen).*

4.6 Assessing the Goodness of Fit

With different models at hand, it is worth investigating how well these actually predict protest participation. To do so means to analyze measures of model fit for the binary logistic regression models.

Similar to OLS, logistic regression provides r-squared (R^2) values as a measure of fit.[59] An R^2-value is calculated by accounting for the difference of the loglikelihood for the empty model ($-2\mathrm{LL}_{\mathrm{NULL}}$) and for the loglikelihood for the model that includes the independent variables ($-2\mathrm{LL}_{\mathrm{k}}$). Equation 4.1 depicts the formula for calculating Nagelkerke's R^2.

$$R^2 = \frac{1-(\frac{-2LL_{null}}{-2LL_k})^{\frac{2}{n}}}{1-(-2LL_{null})^{\frac{2}{n}}} \qquad \textbf{Equation 4.1}$$

The R^2-value indicates how much variation in the outcome is explained by the model. Reviewing the last rows in all the logistic regression tables above, the Nagelkerke's pseudo-r^2 values are listed. For Table 4.2 the values are quite high, explaining from 27% of the variation in the outcome for Algeria up to 47% for Yemen. The results for protest participation measured in Table 4.3 have significant lower respective values, ranging from 11% for Algeria to 33% for Yemen. For Table 4.4, these values improve again, now ranging from 22% explained variance in the outcome to 32%. If solely based on Nagelkerke's pseudo-r^2 measure, the results indicate that Table 4.2 contained the best measures of fit for the models, as most percentage of the variation in the outcome is explained by these models.

However, the pseudo-r^2 measure should be interpreted with caution, as they are approximations and should not be overly emphasized. An alternative goodness of fit measure is provided by the Hosmer and Lemeshow (HL) test, which reflects a chi-squared test that predicts whether or not observations correspond to expectations in subgroups of the model data. A significant test corresponds to the model *not* being a good fit, which means that a non-significant test is desired as it supports the model's goodness of fit. This is because we want to reject the test's null hypothesis which states that there is no difference between observed and predicted values in the model. For Algeria and Jordan, the HL tests were non-significant (p-values above 0.05), thereby indicating overall good fit for most models. For Tunisia and

[59] I focus on Nagelkerke pseudo-r^2 since it varies from 0 to 1; unlike Cox and Snell's pseudo-r^2 which maximum is usually less than 1.

Yemen, the HL tests indicated in most cases rather bad model fit though. The individual p-values are shown in Table 4.6.

Table 4.6: Hosmer-Lemeshow Test

	Algeria	**Jordan**	**Tunisia**	**Yemen**
Table 4.2	0.834	0.901	0.006	0.010
Table 4.3	0.935	0.556	0.004	0.062
Table 4.4	0.452	0.285	0.614	0.050

Note: The numbers represent p-values. Non-significance as in p>0.05 indicates that the model has a good fit.

Nevertheless, the HL test is also limited in explaining the model's goodness of fit. Firstly, it only assesses whether the model fits or not, lacking information about the extent of the potential fit. Secondly, it is based on a chi-squared statistic that is heavily dependent on sample size, which makes any interpretation without accounting for the size less telling. For example, very small differences in large samples (as I use here) can easily lead to significance. Thirdly, the resulting p-value can easily change when interactions are included in the model (Allison, 2013).

Another measure of fit consists of comparing classification tables. This allows a more direct way of investigating the extent to which the independent variables of the model accurately predict the dependent variable by comparing predicted scores with actual group membership scores. In order to assess a predicted outcome to the actual value on the dependent variable, a threshold or cut-off point is required to account for the respective probabilities of the two outcomes in the dependent variable. This cut value is usually 0.5 and it indicates whether a case becomes classified in the yes category (greater or equal to 0.5) or no category (less than 0.5) of the dependent variable. Thus, to assess the effectiveness of predicted classifications against actual classifications means to compare *sensitivity* and *specificity* of the model to attain overall percentage accuracy in classification, or PAC (Leard Statistics, 2013). Sensitivity refers to *true positives*, or to the percentage of cases that contained the observed characteristic ("yes" for protest participation) which were correctly predicted by the model (Ibid). Specificity refers to *true negatives*, or the percentage of cases that did not have that observed characteristic ("no" for protest participation) and were correctly predicted as not having that observed characteristic (Ibid).

Running binary logistic regressions provides two classification tables, one for the null model ($Model_0$) which does not include independent variables (simply calculates the percentage based on the larger group membership) and one for the model that accounts for individual variables. The comparison of the PAC of the null models with the PAC of the actual models thereby assesses the extent by which the model improves the prediction of group membership. If the model with independent variables predicts more group membership accurately than the null model which merely assumes that correct classifications belongs to the largest group, then the former is good fitting. Table 4.7 provides an overview of classification accuracy for Tables 4.2, 4.3 and 4.4.

Table 4.7: Classification Accuracy (in percentage)

	Algeria		**Jordan**		**Tunisia**		**Yemen**	
	$Model_0$	$Model$	$Model_0$	$Model$	$Model_0$	$Model$	$Model_0$	$Model$
Table 4.2	94.6	95.3	95.5	95.8	57.7	74.8	60.2	77.1
Table 4.3	78.4	79.1	88.4	88.5	68.7	74.0	53.9	71.0
Table 4.4	95.5	95.5	96.9	97.2	77.6	82.1	58.6	71.5

Note: $Model_0$ are null models (without any independent variables); Model include independent variables.

The results of Table 4.7 indicate that the change from the null models to the models with independent variables did not greatly enhance classification accuracy for Algeria and Jordan. This is not necessarily unexpected, as these two countries have a relative low number of protest participants compared to the other two countries. For Tunisia and Yemen, the models help quite a bit with accurate classification. For Table 4.2, for example, the models improve accurate classification by about 17% for both Tunisia and Yemen.

While this method of assessing accuracy of the models by comparing classification tables is reasonable, the cut off value of 0.5 is chosen rather arbitrarily which poses questions about the reliability of this method. To overcome this challenge, I calculate receiver operating characteristic (ROC) curves with the help of predicted probabilities from the logistic regression models. These ROC-curves help to interpret the trade-off between sensitivity and specificity levels of my diagnostic tests as they simultaneous measure the sensitivity (true positive values) and the specificity (true negative values) for all possible cut-off points. The ROC-curve then plots sensitivity (y-axis) over 1-specifitiy (x-axis), which depicts an aggregate measure of overall predictive power. An overall indication of the diagnostic accuracy of a ROC-curve

is termed the area under the curve (AUC). AUC values closer to 1 indicate the screening measure reliably distinguishes among subjects that have or do not have the outcome of interest (in my case protest participation), respectively. This means that an area of 1 represents a perfect test, with perfect sensitivity and specificity. An AUC value of about 0.5, on the other hand, is very much a meaningless test as it reflects that predictions are mostly random and the model does not add much explanation. Table 4.8 illustrates the AUC values for the respective models. Figures 4.1 to 4.4 illustrate the corresponding ROC-curves by country, with each graph including three curves (one for each of Table 4.2, 4.3 and 4.4).

Table 4.8: AUC-values of ROC-curves

	Algeria	**Jordan**	**Tunisia**	**Yemen**
Table 4.2	0.845***	0.880***	0.763***	0.788***
Table 4.3	0.640***	0.728***	0.772***	0.783***
Table 4.4	0.825***	0.812***	0.796***	0.751***

*Note: An area under the curve (AUC) of 1 represents a perfect test, while an AUC of 0.5 is a worthless test. Thus, a larger value indicates better fit of the model. Statistical significance at a 95% confidence level of the ROC-curve is indicated by ***.*

Figure 4.1: ROC-Curves for Algeria

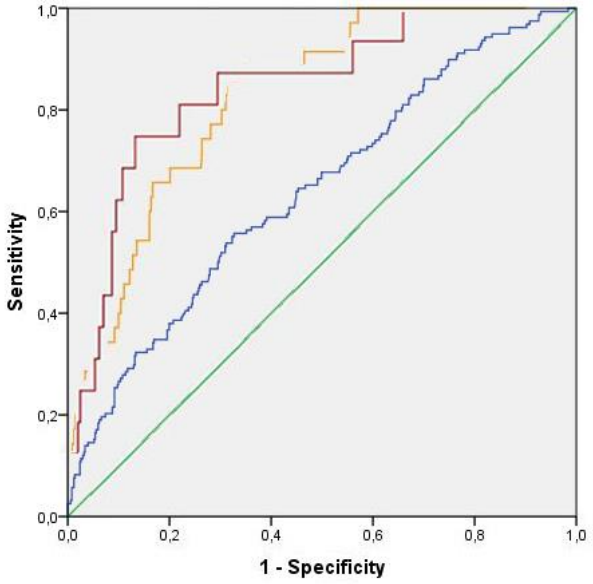


Figure 4.2: ROC-Curves for Jordan

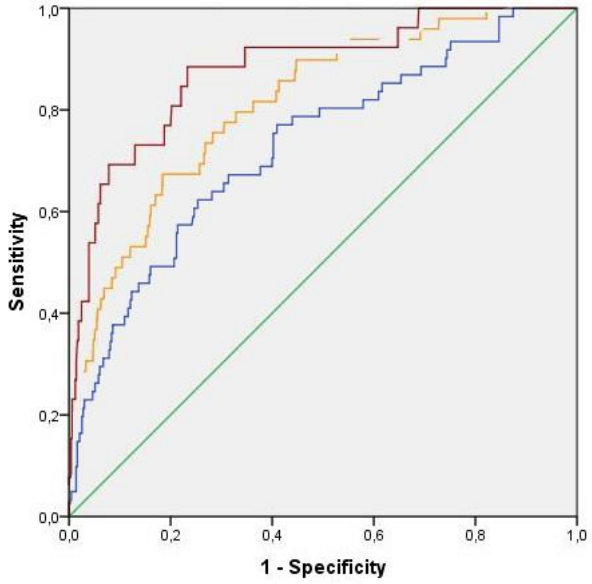


Figure 4.3: ROC-Curves for Tunisia

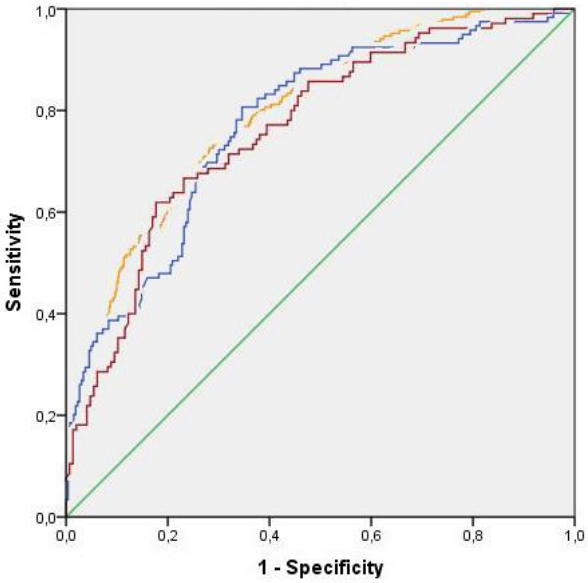
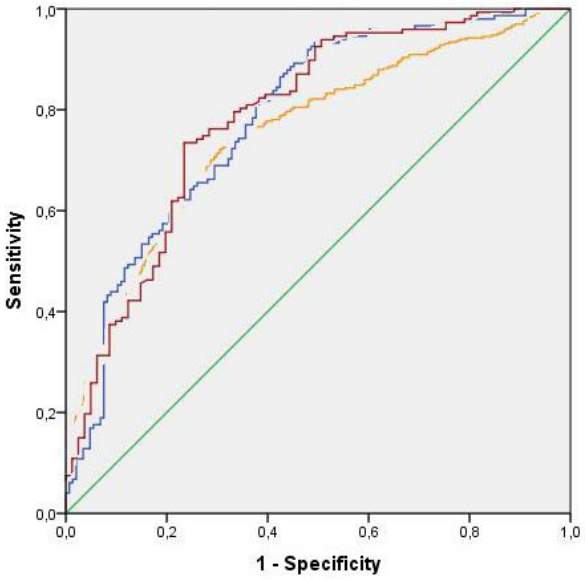


Figure 4.4: ROC-Curves for Yemen



Notes*: For the Figures 4.1 to 4.4, the red ROC-curves are for the results of Table 4.2, the blue curves correspond to Table 4.3, and the orange curves relate to the regressions of Table 4.4.*

The AUC-values are overall fairly high and all statistically significant at a 95% confidence level, which indicates that the curves are significantly different from the 0.5 baseline model. Thus, the logistic regressions appear to classify groups significantly better than by chance, but in some cases still far from perfectly (e.g. 0.640 for Algeria in Table 4.3 or the respective blue curve in Figure 4.1).

In order to account for how good the full models really fit vis-à-vis models that include only motivational or opportunistic variables, I re-run regressions and calculate respective AUC-values for the following cases. First, I create AUC-values for a *baseline model* that only includes control variables as predictors. Secondly, AUC-values are created for a motivation model that includes motivational and control variables, but excludes opportunistic variables. Third, the AUC-values for an opportunity model will include opportunistic and control variables, but exclude motivational variables. I will compare these AUC values then with the results of full models that include all independent variables. The full models are based on Table 4.2 (and thereby wave 3), because the respective goodness of fit measures such as AUC-values and Nagelkerke's r^2 values analyzed so far were among the highest (except for Tunisia) for Table 4.2 in comparison to Tables 4.3 and 4.4. The comparison of AUC values is shown in Table 4.9.

Table 4.9: Comparison of AUC values with Limited Models

	Algeria	Jordan	Tunisia	Yemen
Baseline Models	0.708***	0.668***	0.759***	0.633***
Motivation Models	0.817***	0.743***	0.776***	0.687***
Opportunity Models	0.782***	0.813***	0.706***	0.762***
Full Models (Table 4.8)	0.845***	0.880***	0.763***	0.788***

*Note: Statistical significance at a 95% confidence level of the ROC-curve is indicated by ***. All values are based on variables included in Table 4.2 (thus, the Full Model values are equal to the first row in Table 4.8).*

The first observation to note is that almost all motivation models and opportunity models increase the AUC-values (and therein goodness of fit) compared to the baseline models. This is not the case for the opportunity model of Tunisia, however. In fact, the model that only includes motivational and control variables appears to be better fitting for Tunisia than the full model. A similar, but not so extreme case is highlighted by Algeria, for which the motivation model adds more to the goodness of fit than the opportunity model. On the other hand, for Jordan and Yemen, opportunities appear to play a more important role in increasing goodness of fit than motivations. This suggests, as previously assumed, that both motivations as well as opportunities play an important, often mutually reinforcing part in explaining protest participation. In summary, it appears fair to say that the full models have an overall good – but by no means perfect – predictive power of Arab and protest participation.

4.7 Conclusion

To conclude, this chapter showed through statistical analyses of binary logistic regressions that both motivational, grievance-based factors as well as opportunistic elements play a role in explaining Arab Spring participation. More particularly, perceptions of unequal treatment, the lack of freedom to express opinions, better educational achievements, as well as being a member of a political party and/or civil organization all seem to contribute significantly to explaining recent protest participation in the Arab world. The hypothesis that unemployed youth were more prone to participate is not extensively supported, except for some sporadic cases. The two religious measures of frequency of Qur'an reading and attending religious rallies also indicated mixed results. Using the same data as Hoffman and Jamal (2014), namely wave 2 of the Arab Barometer, I was able to confirm their findings for most of my selected

countries. However, using the new data of wave 3 provides a different picture, as Table 4.2 and 4.4 indicated that actual Arab Spring participation – in contrast to general protest participation before 2011 – was promoted by less rather than more frequent Qur'an reading (at least in the countries in which it significantly contributed to participation). Furthermore, using the new data of wave 3 shows that attending religious meetings, such as Friday prayers, appeared to have had a significant effect on Arab Spring participation, but only in countries that ousted their rulers. Finally, while using Facebook made no significant contribution to Arab Spring participation, using the internet for political matters in general was almost always significant; if it was included. All in all, the full models appear to be relatively good fitting, as various goodness-of-fit tests indicated overall good predictive power.

5 Robustness Diagnostics

This chapter assesses the robustness in form of reliability and validity of the results depicted in Chapter 4. Robustness assessments are crucial, as unreliable or invalid results produce unwarranted conclusions from the analyses, which can lead to potentially giving wrong advice to policy-makers (Agresti, 2002). The robustness assessment of this chapter includes checking for possible violations of the assumptions for binary logistic regressions, as outlined at the end of Chapter 3.

This chapter is divided into two parts. First, I briefly discuss the *reliability* of my results. Then, I analyze three forms of *validity*: construct validity, internal validity, and external validity. I conclude that my results are quite robust, being overall fairly reliable as well as internally valid. The corresponding generalizability (external validity) presumably holds fairly well for countries of the Arab world, but should be considered cautiously in regards to – and contingent on – other parts of the world.

5.1 Reliability

A first robustness assessment concerns reliability and relates to the efficiency of the results (King et al., 1994:151). In other words, reliable findings are consistent measures with minimal random errors which ensure that the reproduction of the same analyses yields the same (or at least very similar) results (Ibid). In this, replicability is essential in making valid inferences, as unreliable results might suppress any proper assessment of validity (Dawis, 2000:78).

As previously outlined in Chapter 3, the interviews were conducted by regional experts and academics whose surveys should have yielded sufficiently adequate data to make the Arab Barometer measures overall reliable. Systematic and non-systematic (random) measurement errors are most commonly caused by issues such as social desirability bias, non-response bias, recall bias, and so forth – and such errors can never be completely ruled out (Bhattacherjee, 2012:80-2; Gleser, 1992). But due to the vast experience of the staff that conducted the interviews as well as the primary objective of the conduction itself – namely to establish *reliable* data – I trust that the Arab Barometer surveys were conducted in such a manner that produced

satisfactory reliable data.[60] This can be further supported by the argument that common techniques – such as test-retest, split-half methods, intercoder reliability checks and other follow-up checks – were most likely conducted to confirm the reliability of the data (Ibid:56-8).

In order to allow for full transparency as in enabling the replication of the analyses conducted in this thesis, the respective coding syntax I employed is available upon request, as well.

5.2 Validity

Using reliable data by itself does not automatically ensure accurate results. This is because reliability does not assure accuracy or unbiasedness. Instead, validity refers to the extent that operationalized indicators actually reflect what one intends to measure, and therein assesses the unbiasedness of results (King et al., 1994:151). There exist different threats to validity which can potentially bias results, such as model misspecification or the presence of highly influential observations, also called outliers or residuals. In the following sections of this chapter, I investigate construct validity, internal validity (causality), and external validity (generalizability) of my models in order to support the robustness of my analytical findings of Chapter 4.

5.2.1 Construct Validity

Construct validity refers to the extent to which independent variables actually measure what they are supposed to measure. In other words, this form of validity assesses how well the operationalizations of the included variables reflect their theoretical foundations. Among other scholars, Adcock and Collier (2001) argue that each variable should incorporate all theoretical aspects it operationalizes; only those and no others. In order to account for the potential threat of having measures included which do not cover all aspects of their theoretical foundations, I provide alternative operationalizations of the most essential concepts to improve the confidence in (and therein robustness of) my findings. With reference to the results from Table 4.2 in the last chapter, the findings of alternative operationalizations for motivational variables are shown in Table 5.1.[61] For pragmatic reasons, the results are only depicted for the case of

[60] "The Arab Barometer is a multi-partner collaborative project housed at the Arab Reform Initiative (ARI) established to produce ***reliable*** data on the politically-relevant attitudes of ordinary citizens." (my emphasis) Arab Reform Initiative. 2014.

[61] Alternative operationalizations are only provided for motivational variables, because these are latent variables (perceptions and attitudes). Opportunity variables are observable and provide thereby more solid results that do not necessarily need robustness tests. Thus, I provide alternative measures only for motivations.

Algeria. Nevertheless, each alternative operationalization was employed for all four countries and corresponding results are available upon request. Although not shown here, the findings from all four countries are discussed in some detail below.

In Table 5.1, each new Model includes *one* alternative operationalization for an independent variable, with the other variables remaining consistent with the original model of Table 4.2. Model 2 and Model 3 show alternative operationalizations for the measure of *perception of unequal treatment.* Model 2 uses a binary variable for the *evaluation of the current economic situation in one's home country (very good/good* versus *bad/very bad).* Model 3 employs the alternative dichotomous variable of *the extent to which citizens compare their living conditions with the rest of their fellow citizens (much worse/worse* versus *similar/better/much better).* For any of the four countries, both Model 2 and Model 3 show very similar results to the original findings of Table 4.2.

In Model 4, an additional interaction term of *higher education* and *unemployment* is included. Except for Algeria, the interaction term is non-significant and all results remain overall the same as in Table 4.2. This suggests that among the four countries, only Algerians who both achieved higher education and were unemployed were more likely to participate in the Arab Spring than those who were employed and had lower or no education, ceteris paribus.

Model 5 replaces the variable that measured *free expression being guaranteed or not* with the alternative measure of *support for individual political freedoms such as freedom of the press, freedom of expression, and freedom to establish associations (strongly/somewhat support versus do not/strongly do not support).* For Jordan, Tunisia, and Yemen, the alternative variable does hardly change any of the original results of having *free expression* included as in Table 4.2. For Algeria, the variation on this variable was very low – only 13 respondents answered that they *do not (strongly) support individual freedoms*, while 1165 answered they do support them.[62] As previously discussed in the beginning of Chapter 4, this low variation explains the overly large odds ratios and standard errors, which should be considered with caution.

[62] In comparison, for Jordan, Tunisia and Yemen, the amount of non-supporters amounted to at least 100 respondents.

Table 5.1: Alternative Operationalizations for Motivations - Algeria

Alternative Independent Variables

	Original (4.2)	Model 2	Model 3	Model 4	Model 5	Model 6
Motivations						
Equal Treatment	-0.87			-1.05	-0.83	-0.63
	(0.73)			(0.78)	(0.64)	(0.67)
Economic Situation		-1.21				
		(0.81)				
Living Conditions (compared)			1.12			
			(1.17)			
Unemployment	0.24	-0.19	0.77	-0.52	0.53	-0.04
	(1.20)	(1.59)	(1.20)	(1.44)	(1.17)	(1.15)
Youth	1.36	1.77	0.94	1.83	1.31	1.09
	(1.50)	(1.56)	(1.43)	(1.63)	(1.31)	(1.37)
Unemployment*Youth	-0.24	0.02	0.12	-0.16	-0.72	0.13
	(1.57)	(1.93)	(1.51)	(1.72)	(1.52)	(1.50)
Higher Education	-0.20	-0.53	-0.34	-0.88	0.47	-0.25
	(0.84)	(0.85)	(0.80)	(0.98)	(0.72)	(0.82)
H. Education*Unemploy.				4.79**		
				(2.19)		
Free Expression	-0.69	-0.59	-0.59	-0.66		-0.82
	(0.66)	(0.67)	(0.67)	(0.68)		(0.62)
Support for Political Freedom					18.81	
					(19,902.58)	
Qur'an Reading						
...Sometimes	-2.03**	-2.25***	-2.16**	-2.18**	-1.67**	
	(0.82)	(0.87)	(0.85)	(0.87)	(0.70)	
...Most of the time	-1.48*	-1.83*	-1.58*	-1.47*	-1.74**	
	(0.87)	(0.95)	(0.90)	(0.89)	(0.83)	
...Always	-1.43	-1.59	-1.31	-1.14	-1.53	
	(1.65)	(1.69)	(1.66)	(1.67)	(1.62)	
Self-perception of being… (Reference: …Not religious)						
…Somewhat religious						-0.75
						(1.12)
…Religious						0.02
						(1.36)
Opportunities						
Political Party	-18.92	-18.56	-18.74	-18.63	-19.25	-18.79
	(16,915.97)	(16,792.94)	(16,909.16)	(16,589.29)	(16,839.80)	(16,685.05)
Civil Organization	2.51	1.58	1.98	3.63	2.76	2.42
	(36,748.88)	(36,692.41)	(36,745.75)	(36,599.66)	(36,713.88)	(36,643.16)
Internet for Politics	-0.98	-0.06	-0.66	-1.94	-1.31	-0.93
	(1.29)	(1.22)	(1.17)	(1.52)	(1.23)	(1.35)
Friday Prayers						
...Sometimes	-1.54	-0.69	-1.04	-1.91	-1.74	-2.14 †
	(1.41)	(1.41)	(1.35)	(1.47)	(1.28)	(1.31)
...Most of the time	0.09	0.79	0.09	-0.08	0.26	-0.52
	(0.92)	(1.00)	(0.92)	(0.93)	(0.79)	(0.86)
...Always	-0.68	-0.51	-0.18	-1.28	-0.88	-1.52 †
	(1.08)	(1.09)	(1.03)	(1.17)	(0.93)	(0.12)
Controls						
Age	0.48	0.62	0.41	0.52	0.40	0.39
	(0.49)	(0.49)	(0.47)	(0.50)	(0.43)	(0.45)
Age²	-0.007	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.007)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	1.82**	1.75**	1.85**	1.94**	2.23***	1.89**
	(0.85)	(0.85)	(0.81)	(0.88)	(0.82)	(0.87)
Constant	-9.49	-12.15	-9.78	-9.93	-27.73	-7.98
	(7.97)	(8.15)	(7.76)	(8.17)	(19,902.58)	(7.55)
Observations	257	262	262	257	268	255
Pseudo R^2 (Nagelkerke)	0.27	0.29	0.26	0.32	0.28	0.21

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01. † refers to statistical significance being close to p<0.10*

Last but not least, Model 6 includes an alternative assessment of religious affinity. Instead of the *frequency of Qur'an reading*, I include a variable that measures the *self-perception of being religious (reference category: not religious; categories: somewhat religious, religious).* Contrary to Qur'an reading, this alternative variable has hardly any significant results for any of the four countries but Yemen. This indicates that self-perception of attitudes such as religiosity can be misleading, because respective findings are probably affected by survey challenges such as social desirability bias.

But for Yemeni, *being somewhat religious* or *being religious* compared to *being not religious* increased the odds of participating in the Arab Spring by a factor of 25 and 34 at a 99% confidence level, respectively and ceteris paribus. This positive relationship between religious affinity and Arab Spring participation was already evident in the results of Qur'an reading in Table 4.2, while however not that strong. For the other three countries, the relationship was negative, even if almost entirely non-significant. A possible explanation for this discrepancy could be the religious division between Shia Northerners (Houthi minority) and Sunni Southerners (majority) in Yemen – while the other three countries of Tunisia, Jordan, and Algeria have an extensive majority of Sunni population (above 95% Sunni).

As with the independent variables, it is equally important to account for the dependent variable measuring what it intends to measure. In the previous chapter, I used an alternative dependent variable to measure protest participation for wave 2. This variable measured if respondents have *participated in protests, marchs or sit-ins (never versus at least once)*; and it is also available in wave 3 of the AB. Thus, it provides a good alternative measure for a robustness check of the dependent variable. Table 5.2 depicts the results for the alternative operationalization of the dependent variable for all four countries. The *original* columns are equivalent to the findings in Table 4.2 and the *new* columns show the respective results for regressions with the alternative dependent variable. Except for a few diverging findings, the overall tendency illustrates that the results for the new dependent variable are mostly consistent with the original findings. One discrepancy that appears to be standing out, however, is that *perception of (un)equal treatment* is not significantly explaining protest participation for any of the four countries anymore. An explanation for this rather surprising result might be that the original variable measured predominantly more *active* protest participation (of rallies and demonstrations in the streets), while the new variable also includes *sit-ins*.

Table 5.2: Alternative Operationalization for the Dependent Variable

	Algeria		Jordan		Tunisia		Yemen	
	Original	**New**	**Original**	**New**	**Original**	**New**	**Original**	**New**
Motivations								
Equal Treatment	-0.87	-0.19	-1.74***	-0.14	-0.63**	-0.24	-0.73 †	-0.66
	(0.73)	(0.46)	(0.58)	(0.50)	(0.28)	(0.31)	(0.50)	(0.54)
Unemployment	0.24	-1.93 †	-18.55	-0.42	0.71 †	0.54	0.75	2.00*
	(1.20)	(1.31)	(8,456.96)	(1.28)	(0.47)	(0.52)	(0.82)	(1.08)
Youth	1.36	-1.32	2.22*	0.66	0.83	1.40*	-0.32	1.32
	(1.50)	(0.92)	(1.28)	(1.07)	(0.67)	(0.72)	(1.06)	(1.11)
Unemployment*Youth	-0.24	2.05	17.46	1.73	-0.27	-1.27*	-0.39	-2.61*
	(1.57)	(1.55)	(8,456.96)	(1.43)	(0.64)	(0.71)	(1.28)	(1.52)
Higher Education	-0.20	-0.03	0.85	0.74	1.01***	1.29***	1.03*	0.88
	(0.84)	(0.48)	(0.66)	(0.59)	(0.30)	(0.32)	(0.57)	(0.62)
Free Expression	-0.69	-0.69 †	0.54	0.54	0.42	-0.11	0.35	0.23
	(0.66)	(0.43)	(0.60)	(0.56)	(0.35)	(0.37)	(0.49)	(0.53)
Qur'an Reading								
...Sometimes	-2.03**	-0.79 †	-0.07	2.06 †	-0.91	0.70	-0.66	-1.49**
	(0.82)	(0.53)	(0.92)	(1.30)	(0.65)	(0.80)	(0.61)	(0.69)
...Most of the time	-1.48*	-1.25**	-1.70 †	1.65	-0.04	0.98	1.19*	0.60
	(0.87)	(0.61)	(1.07)	(1.33)	(0.64)	(0.79)	(0.66)	(0.70)
...Always	-1.43	-0.34	-2.00**	0.32	-0.67	0.75	0.91	1.73**
	(1.65)	(1.01)	(1.00)	(1.41)	(0.63)	(0.78)	(0.66)	(0.78)
Opportunities								
Political Party	-18.92	-0.48	5.23***	23.05	0.44	1.28*	0.91*	0.98*
	(16,915.97)	(1.74)	(2.16)	(23,179.96)	(0.77)	(0.75)	(0.47)	(0.53)
Civil Organization	2.51	3.97*	0.05	2.74**	21.61	1.74 †	0.78	0.82
	(36,748.88)	(2.13)	(1.58)	(1.13)	(17,011.51)	(1.13)	(0.72)	(0.82)
Internet for Politics	-0.98	-0.31	1.73***	0.96*	0.94***	1.17***	1.38***	2.00***
	(1.29)	(0.71)	(0.65)	(0.57)	(0.30)	(0.32)	(0.50)	(0.50)
Friday Prayers								
...Sometimes	-1.54	-1.27 †	18.23	19.47	1.03**	0.53	0.97	-0.54
	(1.41)	(0.85)	(3,863.71)	(4,028.72)	(0.45)	(0.49)	(1.66)	(1.85)
...Most of the time	0.09	-0.06	16.53	18.01	-0.08	0.22	2.17	-1.88
	(0.92)	(0.59)	(3,863.71)	(4,028.72)	(0.52)	(0.55)	(1.54)	(1.79)
...Always	-0.68	-0.25	18.36	17.61	0.43	0.47	2.66*	-0.93
	(1.08)	(0.65)	(3,863.71)	(4,028.72)	(0.37)	(0.41)	(1.54)	(1.77)
Controls								
Age	0.48	0.22	0.25	0.10	-0.18	-0.02	-0.24	0.12
	(0.49)	(0.29)	(0.27)	(0.17(	(0.14)	(0.12)	(0.29)	(0.32)
Age²	-0.007	-0.004	-0.003	-0.001	0.003 †	0.0001	0.003	0.0001
	(0.007)	(0.004)	(0.003)	(0.002)	(0.002)	(0.001)	(0.004)	(0.004)
Gender	1.82**	0.64	0.33	0.29	1.02***	1.16***	-1.21**	-2.28***
	(0.85)	(0.48)	(0.72)	(0.55)	(0.32)	(0.36)	(0.51)	(0.61)
Constant	-9.49	-2.63	-26.27	-26.23	0.46	-4.17†	1.44	-1.49
	(7.97)	(5.07)	(3,863.71)	(4,028.72)	(2.82)	(2.66)	(5.58)	(5.83)
Observations	257	274	511	512	252	251	228	234
Pseudo R^2 (Nagelkerke)	0.27	0.21	0.42	0.39	0.31	0.32	0.47	0.52

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01. † refers to statistical significance being very close to p<0.10. Original from Table 5.2*

While I am not certain how much emphasis was put on *sit-ins* during the survey conduction, this form of rather *passive* protest participation could have influenced the results in such a manner as to underplay the role of grievances. This is because contrary to active forms of protest participation (as measured in the *original* dependent variable), more passive forms of protests are unlikely to be built on strong emotions such as frustrations or feelings of relative deprivation. If respondents understood this question (measuring protests, marches, and sit-ins) as a more moderate or passive form of protest participation compared to the original (Arab Spring participation) question, this could explain the new-found non-significance of the variable that accounts for unequal treatment (Hypothesis 1).

All in all, the alternative operationalizations of both independent and dependent variables provide overall quite robust results. Thus, the construct validity of my original measures is fairly satisfactory. Besides construct validity, it is also essential to assess the internal and external validity of my models. The following sections will investigate these in some depth.

5.2.2 Internal Validity

Internal validity relates to causality (causal relationship; cause-and-effect) and assesses if estimators are unbiased and consistent. More specifically, internal validity refers to an assessment on if the statistical inferences about causal effects are valid for the population and setting being studied (Stock and Watson, 2012:355). As reliability is a prerequisite for validity, strong internal validity refers to having both: reliable measures of independent and dependent variables as well as a strong justification that causally links the former to the latter. This causal linkage is important, as correlation does not imply causality (King et al., 1994:192). Thus, any extraneous variables or unanticipated causes for the dependent variables should be ruled out. Potential threats to internal validity will be discussed hereinafter. These threats are functional form misspecification, measurement errors, omitted variable bias, sample selection bias, and simultaneous causality.[63] Each of these threats, if existent, introduces correlation between the regressor and the error term, which can lead to biased and inconsistent results (Stock and Watson, 2012:381).

[63] Note that autocorrelation and heteroskedasticity are potential threats to internal validity as well. They are not considered here, however, since I do not use time-series panel data and since there is no homoscedastic assumption in binary logistic regression.

5.2.2.1 Model Misspecification

In order to attain valid results, one assumes that both the independent variables as well as the dependent variable are correctly specified. A misspecified model will not only be inconsistent, but also biased. Therein, the misspecification of any variables included in the models can potentially lead to biased results. I use the term "misspecification" according to Begg and Lagakos' (1990) definition, which includes the problems of measurement errors, discretizing continuous explanatory variables, as well as omitted variable bias.

The problem of measurement errors was already discussed to some extent in section 5.1 and variable specification was investigated in some depth in section 5.2.1. Furthermore, any potential threat of misspecification due to mismodeling the functional form of a variable, and/or mismeasuring or discretizing a *continuous* variable can be rather easily discarded, since the only continuous variable in my models (for which the "linearity in the logit" assumption has to hold) is the control variable of age – which functional form specification is accounted for by an inverted u-shape of its squared term.

Excluding relevant variables or including irrelevant variables can also lead to biased and/or unreliable results. Including irrelevant variables should not be an issue for my analyses, as all variables in my models underlie fundamental theoretical foundations to be included – as discussed extensively in Chapter 2. On the other hand, excluding relevant variables is also known as *omitted variable bias* and posits a greater challenge than the inclusion of irrelevant variables.

5.2.2.2 Omitted Variable Bias

Omitted variable bias is a more serious threat and usually occurs when there exists a model misspecification in that an explanatory variable is omitted which determines the dependent variable and correlates with at least one explanatory variable (Stock and Watson, 2012:358). But contrary to OLS, omitting an important explanatory variable in logistic regressions can even bias results when the respective omitted variable does not correlate with another independent variables included in the model (Mood, 2010). More specifically, omitted variable bias leads to attenuation bias in logistic regression, which means coefficients are drawn towards zero.

By basing the inclusion of my independent variables on solid theoretical foundations from existent academic research as well as including relevant control variables such as age and

gender in my models, I should have already prevented the threat of omitted variable bias to a great extent. In order to be more confident in that there are no omitted variables in my models, I include other control variables that might be a cause of omitted variable bias. For pragmatic reasons, I illustrate only results for Algeria on the basis of Table 4.2 – while, however, analyzing and discussing results for all four countries. Table 5.3 shows the results for the models that include the additional control variables.

Each new model in Table 5.3 includes one additional control variable that potentially accounts for confounding factors. The most important observation to make is that all models remain overall stable (same variables being significant and coefficients' values being about the same) in comparison to the results of Table 4.2. Thus, it was good to keep those variables out, so that the models are as parsimonious as possible. However, for some new models, the respective added variables were sometimes significant for individual cases. Thus, it is worth to briefly discuss these findings.

Model 2 uses the binary variable of respondents' *perception of there being corruption in state institutions and agencies* or *not.* A recent report by the UNDP (2014) stated that "in the Arab states region, data and information on the scope of corruption continue to be limited, and the public's confidence in the State to act against corruption remains fragile." This might explain why corruption is overall non-significant if included. In fact, it is only significant for Tunisia. Tunisians who perceived corruption to be existent were about 5 times as likely to participate in the Arab Spring compared to those who did not, ceteris paribus. This finding further supports the argument made in the previous chapter (4.4.1) that in Tunisia socio-economic grievances on issues like corruption played a more determinant role than political grievances. Besides high collinearity with variables like *perception of unequal treatment,* corruption has also conceptual limitations that prompted me to exclude it in my original analyses. As Banik (2010) argues, corruption is a rather loose concept or *buzzword* in the development agenda. Corruption is often the single-most cited cause for poor developmental status of a country, which is meaningless unless one understands corruption in its broader context (Ibid:81). Thus, corruption has usually a divergent meaning in different places and times.

Model 3 introduces a binary variable that measures respondents' *perception of the government blocking media coverage of activities and positions of the opposition of the daily press.* This variable is significant for Jordan (+5.5) and near-significant for Tunisia (+1.6), but non-significant for Yemen or Algeria. It has a suppressor effect on other variables, however, as it

is highly collinearly related with other variables, such as internet usage or perception of free expression.[64] A suppressor strengthens the predictive capability of another independent variable (Friedman and Wall, 2005:128). In the case of Algeria (Model 3 in Table 5.3), for instance, age becomes significant once the *government blocks media* variable is included.

In Model 4, a binary variable accounts for respondents' *perception of democracy.*[65] This variable was only significant for Yemen, where citizens that perceived democracy negatively were about 3.6 times more likely to participate in the Arab Spring than those who did not, ceteris paribus. This finding suggests that, at least in some countries, the prospect of democratization by itself was not a key determinant factor for participation in the Arab uprising by itself (see discussion of section 4.2.1 in the previous chapter).

Model 5 and 6 account for respondents' opinions on how laws and regulations should be enacted. In Model 5, a binary variable assesses if respondents agree or disagree with *government and parliament enacting laws in accordance with the people's wishes.* This variable was non-significant for all four countries. Similarly, Model 6 asked respondents if *government and parliament should enact laws in accordance with Islamic law.* This variable was negatively significant for Tunisia (-0.39) and positively significant for Yemen (+4.4).[66]

To account for Model 6's rather divergent outcome, Model 7 introduces a similar variable asking for *the role of religion in politics.*[67] This variable was overall non-significant, but impacted the coefficients and significance levels of some other variables, such as age and frequency of Qur'an reading. This suggests a suppressor effect of this new *religion* variable.

Models 8 to 10 included variables that assessed respondents' perceptions of the Arab world and international relations. Model 8 adds a categorical variable asking for respondents' *perception of global connectivity being a good, a bad, or neither good nor bad thing.* This varia-

[64] A suppressor effect occurs when different types of interactions of associations are mixed. A logistic regression only estimates unstandardized beta weights β and corresponding odds ratios (exp(β)), which makes it difficult to be certain which variable is more important in predicting the outcome. Thus, it is always essential to be careful when interpreting logistic regression outputs, to investigate correlation matrices (see Appendix, Tables A.5 to A.8) and identify patterns of correlation that could indicate suppressor effects.

[65] The variable is coded 0 for pro-democracy and 1 for contra-democracy attitudes. Respondents were asked if they agree or disagree with the following four statements that I combined based on a positive Chronbach's Alpha reliability analysis: (1) *Under a democratic system, the country's economic performance is weak.* (2) *Democratic systems are indecisive and full of problems.* (3) *Democratic systems are not effective at maintaining order and stability.* and (4) *Democracy negatively affects social and ethical values in your country.*
I use these measures since I think that simply asking if a respondent supports a democratic regime type or an autocratic regime type would more likely include errors due to social desirability bias.

[66] For a discussion on the positive effect of religion (Islamic law) on protest activity in Yemen, see section 5.2.1.

[67] Respondents were asked if they agree or disagree with that *religious practices are private and should be separated from social and political life.* (I coded 0=Religion should be private and 1=Religion should be public.)

ble was close to 90% significant for Tunisia, with Tunisians who perceived global connectivity of being *good* compared to those who perceived it *neither good nor bad* being about 3.2 times more likely to participate in the Arab Spring, ceteris paribus. For Yemen, the variable was negatively significant for both *good* and *bad* perceptions. This suggests that Yemeni who perceived global connectivity as being *good* or *bad* were 0.84 and 0.94 times, respectively, less likely to participate than those who perceived it as *neither good nor bad*, ceteris paribus. For Yemen citizens, it appears that tradition and cultural heritage play a more important role than enriched cultural diversity in the society through global connectivity. The emphasis on cultural and traditional aspects in Yemen is arguably further enhanced by the religious division (Shia Houthi in the North – Sunni South divide) in society – as previously discussed regarding the positive significant relationship of the two variables of *laws enacted via Islamic Law* and *frequency of Qur'an reading* with Arab Spring participation.

Model 9 and Model 10 introduce binary variables that account for respondents' opinion on whether the *Arab-Israeli conflict* or *foreign interference* are *obstacles to political reform in the country or not*, respectively. Neither of these variables is significant for any of the four countries and all results for the individual variables remain largely robust.

Model 11 accounts for respondents' *marital status* (being single or not). This binary variable is positively significant for Jordan (+4.5) and Tunisia (+3.8). However, as expected, and being the reason for the initial exclusion of this variable, marital status is highly correlated with other variables, such as youth, age and unemployment.

Last but not least, I tried to include another model that adds a variable which accounts for individual-level wealth. I log-transformed the variable of *income (including all wages, salaries and rent allowances)* and ran regressions accordingly. There were no results for Algeria (and therefore it is not included in Table 5.3), because the number of observations was too low to produce meaningful results (41% of the respondents answered *don't know* and 24% refused to answer). For the other three countries, the log income variable was non-significant. This was most likely a consequence of income correlating with a lot of other included variables, such as gender, age and unemployment.

Overall, none of the tested control variables in this section appears to be significantly or theoretically important enough to be included. Thus, my findings are not very likely to be internally invalid due to the threat of omitted variable bias.

Table 5.3: Adding New Control Variables to Account for Potential Omitted Variable Bias – Algeria

		Alternative Control Variables								
	Original (4.2)	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**	**Model 10**	**Model 11**
Motivations											
Equal Treatment	-0.87	-0.66	-1.06	-0.96	-0.92	-0.84	-1.01	-0.91	-0.67	-0.83	-0.94
	(0.73)	(0.74)	(0.86)	(0.76)	(0.73)	(0.74)	(0.76)	(0.76)	(0.80)	(0.75)	(0.74)
Unemployment	0.24	0.17	-0.22	0.30	0.43	0.43	-0.63	0.35	0.66	0.20	0.23
	(1.20)	(1.21)	(1.29)	(1.18)	(1.19)	(1.24)	(1.61)	(1.19)	(1.30)	(1.19)	(1.18)
Youth	1.36	1.30	0.96	1.50	1.39	1.56	2.17	1.56	2.07	1.30	1.41
	(1.50)	(1.50)	(1.60)	(1.54)	(1.47)	(1.55)	(1.67)	(1.54)	(1.65)	(1.52)	(1.50)
Unemployment*Youth	-0.24	0.16	-0.38	-0.40	-0.37	-0.53	0.47	-0.31	-0.20	-0.24	-0.28
	(1.57)	(1.58)	(1.73)	(1.57)	(1.56)	(1.63)	(1.93)	(1.56)	(1.61)	(1.58)	(1.56)
Higher Education	-0.20	-0.20	-0.54	-0.28	0.19	-0.03	-0.33	-0.20	-0.07	-0.25	-0.16
	(0.84)	(0.85)	(1.08)	(0.86)	(0.89)	(0.85)	(0.91)	(0.84)	(0.87)	(0.84)	(0.84)
Free Expression	-0.69	-0.69	-1.09	-0.69	-0.66	-0.74	-0.69	-0.91	-0.28	-0.75	-0.71
	(0.66)	(0.66)	(0.85)	(0.66)	(0.66)	(0.66)	(0.70)	(0.70)	(0.72)	(0.65)	(0.66)
Qur'an Reading											
...Sometimes	-2.03**	-1.83**	-2.17**	-2.04**	-2.04**	-2.04**	-1.73**	-1.91**	-2.37**	-2.03**	-2.11**
	(0.82)	(0.82)	(1.00)	(0.83)	(0.83)	(0.84)	(0.85)	(0.83)	(0.93)	(0.82)	(0.85)
...Most of the time	-1.48*	-1.43 †	-1.95*	-1.44 †	-1.51*	-1.61*	-1.64*	-1.37 †	-1.38 †	-1.50*	-1.45 †
	(0.87)	(0.89)	(1.12)	(0.89)	(0.89)	(0.89)	(0.97)	(0.88)	(0.92)	(0.87)	(0.90)
...Always	-1.43	-0.34	-1.58	-1.47	-1.27	-1.67	-1.38	-1.10	-1.65	-1.42	-1.28
	(1.65)	(1.87)	(1.87)	(1.65)	(1.67)	(1.68)	(1.67)	(1.68)	(1.69)	(1.65)	(1.68)
Opportunities											
Political Party	-18.92	-19.22	-18.65	-18.93	-18.78	-18.72	-18.72	-18.96	-19.10	-18.97	-18.89
	(16,915.97)	(16,909.99)	(16,238.51)	(16,898.57)	(16,665.34)	(18,843.55)	(19,243.06)	(16,756.18)	(16,747.95)	(16,918.37)	(16,943.11)
Civil Organization	2.51	2.67	9.17	2.63	2.70	2.08	2.31	3.19	1.78	2.54	2.04
	(36,748.88)	(36,746.13)	(36,442.00)	(36,740.87)	(36,634.19)	(37,675.06)	(37,876.45)	(36,675.60)	(36,671.84)	(36,749.99)	(36,761.38)
Internet for Politics	-0.98	-0.94	-1.09	-1.08	-1.16	-1.19	-0.81	-1.13	-0.69	-0.83	-1.00
	(1.29)	(1.28)	(1.48)	(1.31)	(1.31)	(1.33)	(1.32)	(1.32)	(1.27)	(1.35)	(1.29)
Friday Prayers											
...Sometimes	-1.54	-1.64	-1.52	-1.68	-1.62	-1.89	-2.00	-1.75	-1.78	-1.50	-1.53
	(1.41)	(1.42)	(1.73)	(1.44)	(1.41)	(1.49)	(1.50)	(1.44)	(1.46)	(1.47)	(1.41)
...Most of the time	0.09	0.25	0.35	0.06	0.09	-0.18	-0.24	0.02	-0.73	0.10	0.07
	(0.92)	(0.94)	(1.30)	(0.93)	(0.94)	(0.99)	(0.98)	(0.94)	(1.07)	(0.99)	(0.93)
...Always	-0.68	-0.65	-0.40	-0.66	-0.75	-0.83	-1.05	-0.66	-0.81	-0.66	-0.59
	(1.08)	(1.09)	(1.46)	(1.08)	(1.09)	(1.10)	(1.16)	(1.07)	(1.11)	(1.10)	(1.10)
Controls											
Age	0.48	0.49	2.19*	0.55	0.51	0.55	0.76	0.61	0.61	0.50	0.45
	(0.49)	(0.49)	(1.30)	(0.51)	(0.49)	(0.51)	(0.56)	(0.53)	(0.54)	(0.50)	(0.46)
Age^2	-0.007	-0.008	-0.04 †	-0.008	-0.008	-0.008	-0.011	-0.009	-0.009	-0.008	-0.007
	(0.007)	(0.008)	(0.03)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)	(0.008)	(0.007)
Gender	1.82**	1.58*	2.54*	1.83**	1.93**	1.90**	1.94**	1.90**	1.86**	1.85**	1.75**
	(0.85)	(0.86)	(1.34)	(0.86)	(0.87)	(0.87	(0.92)	(0.86)	(0.91)	(0.87)	(0.86)
Corruption		18.30									
		(6,808.15)									
Government Blocking Media			-0.92								
			(0.88)								

Against Democracy				-0.54							
				(0.95)							
Laws Enacted via People's Wishes					0.71						
					(0.70)						
Laws Enacted via Islamic Law						0.76					
						(1.05)					
Religion in Politics							0.61				
							(0.72)				
Global Connectivity (Ref: Neither)											
…Somewhat Bad/Very Bad								-0.59			
								(1.19)			
…Somewhat Good/Very Good								0.51			
								(0.69)			
Arab-Israel Conflict									0.20		
									(0.81)		
Foreign Interference										-0.22	
										(0.71)	
Marital Status											0.81
											(1.30)
Constant	-9.49	-27.59	-29.68*	-10.43	-10.45	-11.11	-14.54	-11.55	-12.68	-9.50	-9.99
	(7.97)	(6,808.15)	(16.26)	(8.33)	(8.03)	(8.50)	(9.25)	(8.54)	(8.83)	(8.19)	(7.76)
Observations	257	243	213	256	245	241	243	252	251	249	257
Pseudo R^2 (Nagelkerke)	0.27	0.30	0.37	0.27	0.28	0.27	0.27	0.28	0.27	0.27	0.27

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01. † refers to statistical significance being very close to p<0.10*

5.2.2.3 Sample Selection Bias

Another challenge for internally valid results posits sample selection bias. This form of bias occurs when missing data is not missing completely at random, but instead there exists a pattern of missing cases and respective values in the data set. Such a pattern can induce correlation between one or more variables and the error term, causing biased and inconsistent estimators (Stock and Watson, 2012:365). To overcome the shortcomings of earlier ad hoc practices such as listwise deletion, new procedures like multiple imputation allow for a more reasonable solution to use existing variables to predict new scores that replace missing values (Schafer and Olsen, 1998). More specifically, multiple imputation runs simulations on behalf of the available data and makes a probability judgment of what the missing values would most likely be by taking the average score out of a number of imputations for each variable in order to establish values for the missing ones. It therein goes through several iterations and comes up with many results of new data to replace the missing data, trying to find the iteration that creates the best fit with the original, non-missing data.

By analyzing the patterns of missing values in my models, I found that the missing values are overall randomly arranged. This indicates that the missing values are missing in a non-systematic, random pattern. This randomness to the missing values minimizes the potential for bias, which would be evident, for example, by a series of questions that respondents systematically did not answer.

Nevertheless, I conduct multiple imputation to be more confident that my results are robust and therein not biased due to missing data. For pragmatic reasons once again, Table 5.4 presents the new results in comparison to the original findings of Table 4.2 only. The new findings are the result of pooled analyses in terms of average scores of 5 imputations on missing data.

The new results based on multiple imputation appear to remain overall robust compared to the original results of Table 4.2. In fact, they seem to be quite similar to the results of Table 4.4, which suggests that taking the *internet variable* out to improve findings was a worthwhile strategy. One of the probably most noteworthy changes due to multiple imputation is that the variables of *freedom to express opinions* as well as age^2 appear to play a more determinant role than was previously ascribed to them. Thus, these variables should not be discarded prematurely. All in all, however, it seems fair to say that there appears to be hardly any bias due to sample selection in my models.

Table 5.4: Results for Multiple Imputation (based on Table 4.2)

	Algeria		Jordan		Tunisia		Yemen	
	Original	**M.I.**	**Original**	**M.I.**	**Original**	**M.I.**	**Original**	**M.I.**
Motivations								
Equal Treatment	-0.87	-0.27	-1.74***	-0.59 †	-0.63**	-0.43**	-0.73 †	-0.28 †
	(0.73)	(0.32)	(0.58)	(0.32)	(0.28)	(0.18)	(0.50)	(0.18)
Unemployment	0.24	0.53	-18.55	-1.07	0.71 †	-0.05	0.75	0.52
	(1.20)	(0.59)	(8,456.96)	(1.28)	(0.47)	(0.28)	(0.82)	(0.36)
Youth	1.36	0.85	2.22*	2.65***	0.83	1.06***	-0.32	0.22
	(1.50)	(0.72)	(1.28)	(0.88)	(0.67)	(0.41)	(1.06)	(0.39)
Unemployment*Youth	-0.24	-0.55	17.46	0.49	-0.27	-0.18	-0.39	-0.81
	(1.57)	(0.82)	(8,456.96)	(1.45)	(0.64)	(0.40)	(1.28)	(0.61)
Higher Education	-0.20	0.13	0.85	0.90**	1.01***	1.05***	1.03*	0.60
	(0.84)	(0.38)	(0.66)	(0.39)	(0.30)	(0.21)	(0.57)	(0.62)
Free Expression	-0.69	-0.77**	0.54	-0.11	0.42	0.35 †	0.35	0.45**
	(0.66)	(0.36)	(0.60)	(0.37)	(0.35)	(0.23)	(0.49)	(0.19)
Qur'an Reading								
...Sometimes	-2.03**	-0.41	-0.07	0.42	-0.91	0.22	-0.66	-0.67***
	(0.82)	(0.38)	(0.92)	(0.68)	(0.65)	(0.39)	(0.61)	(0.23)
...Most of the time	-1.48*	-1.27**	-1.70 †	-0.09	-0.04	0.51	1.19*	-0.14
	(0.87)	(0.53)	(1.07)	(0.68)	(0.64)	(0.36)	(0.66)	(0.27)
...Always	-1.43	-1.42*	-2.00**	0.12	-0.67	0.14	0.91	-0.15
	(1.65)	(0.78)	(1.00)	(0.75)	(0.63)	(0.37)	(0.66)	(0.24)
Opportunities								
Political Party	-18.92	-11.19	5.23***	12.86	0.44	0.86 †	0.91*	0.67***
	(16,915.97)	(4,359.68)	(2.16)	(13,903.27)	(0.77)	(0.53)	(0.47)	(0.17)
Civil Organization	2.51	-14.40	0.05	1.79**	21.61	3.17**	0.78	0.81 †
	(36,748.88)	(12,323.34)	(1.58)	(0.88)	(17,011.51)	(1.37)	(0.72)	(0.47)
Internet for Politics	-0.98	0.64	1.73***	1.41***	0.94***	1.07	1.38***	1.15***
	(1.29)	(0.49)	(0.65)	(0.48)	(0.30)	(0.24)	(0.50)	(0.23)
Friday Prayers								
...Sometimes	-1.54	-0.69	18.23	0.14	1.03**	0.25	0.97	0.43
	(1.41)	(0.61)	(3,863.71)	(0.62)	(0.45)	(0.28)	(1.66)	(0.50)
...Most of the time	0.09	-0.08	16.53	-1.23	-0.08	0.28	2.17	0.93**
	(0.92)	(0.46)	(3,863.71)	(0.85)	(0.52)	(0.33)	(1.54)	(0.37)
...Always	-0.68	-0.26	18.36	-0.89	0.43	0.53**	2.66*	1.35***
	(1.08)	(0.49)	(3,863.71)	(0.68)	(0.37)	(0.23)	(1.54)	(0.34)
Controls								
Age	0.48	0.23 †	0.25	0.21 †	-0.18	0.03	-0.24	0.06
	(0.49)	(0.15)	(0.27)	(0.13)	(0.14)	(0.05)	(0.29)	(0.06)
Age²	-0.007	-0.003*	-0.003	-0.002	0.003 †	-0.001	0.003	-0.001 †
	(0.007)	(0.002)	(0.003)	(0.001)	(0.002)	(0.001)	(0.004)	(0.001)
Gender	1.82**	1.15***	0.33	0.85 †	1.02***	1.44***	-1.21**	0.30*
	(0.85)	(0.38)	(0.72)	(0.55)	(0.32)	(0.21)	(0.51)	(0.17)
Constant	-9.49	-6.51**	-26.27	-9.59***	0.46	-3.82***	1.44	-3.18**
	(7.97)	(2.95)	(3,863.71)	(3.05)	(2.82)	(1.25)	(5.58)	(1.24)
Observations	257	1198	511	1265	252	1032	228	801
Pseudo R^2 (Nagelkerke)	0.27	0.18	0.42	0.24	0.31	0.35	0.47	0.30

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01. † refers to statistical significance being very close to p<0.10. Original from Table 4.2. M.I. refers to Multiple Imputation.*

5.2.2.4 Residuals

Highly influential observations can also lead to biased results. Such observations are called outliers or residuals, as they are uncommon observations that greatly diverge from the normal distribution of the majority of the data points (Belsley et al., 2004). These observations are highly influential in that including them can alter estimates significantly. The causes for these uncommon observations are manifold, resulting from simple issues like data entry errors or reflecting special cases (in my case respondents). The simplest solution to avoid such bias is to identify any residuals and correspondingly check results without these observations.

In order to identify potential outliers, it is worth investigating *standardized residuals* as well as *Cook's distance*. The standardized residuals are a useful measure of error as they provide comparable standard deviations between the actual outcome and the probability of the predicted outcome for each respondent. The Cook's distance statistic provides an alternative option of identifying observations which might exert an undue influence on the models. Thus, while excluding those cases that have a Cook's distance greater than 1 and/or standardized residual values above or below ±2 (95% of the cases of a normally distributed sample should have values that lie within ±1.96 standard deviation), I re-run the regressions of Table 4.2 to account for potential bias caused by residuals.

Table 5.5 depicts these models without residuals. For all four countries, respective scatterplots depicting standardized residuals over predicted values can be found in Appendix 3, Figures A.8 to A.11. For Algeria, 12 observations were identified as outliers and correspondingly excluded. Further in the case of Algeria, one variable was omitted as the maximum likelihood estimation otherwise failed to converge.[68] For Jordan, Tunisia, and Yemen, the amount of residuals excluded were, 17, 11, and 28, respectively. All in all, the exclusion of outliers appears to not alter results significantly, but mostly improves the strength and significance level of already previously significant indicators. Thus, there appears to be no bias due to highly influential observations in my models.

[68] Note that for Algeria, the variable of *internet usage for political purposes* was excluded, since leaving this variable in would not produce meaningful results. This is because at least one of the convergence criteria was zero or too small (see also footnote Chapter 4, section 4.1).

Table 5.5: Excluding Residuals

	Algeria		Jordan		Tunisia		Yemen	
	Original	**No R.**	**Original**	**No R.**	**Original**	**No R.**	**Original**	**No R.**
Motivations								
Equal Treatment	-0.87	-0.22	-1.74***	-2.89**	-0.63**	-0.92***	-0.73 †	-1.68*
	(0.73)	(0.46)	(0.58)	(1.27)	(0.28)	(0.32)	(0.50)	(0.91)
Unemployment	0.24	-0.36	-18.55	-17.20	0.71 †	0.71	0.75	-0.02
	(1.20)	(0.91)	(8,456.96)	(7,798.44)	(0.47)	(0.51)	(0.82)	(1.47)
Youth	1.36	0.69	2.22*	3.78 †	0.83	0.73	-0.32	-0.63
	(1.50)	(1.03)	(1.28)	(2.62)	(0.67)	(0.74)	(1.06)	(1.70)
Unemployment*Youth	-0.24	0.05	17.46	-2.22	-0.27	0.26	-0.39	1.74
	(1.57)	(1.35)	(8,456.96)	(8,742.68)	(0.64)	(0.70)	(1.28)	(2.18)
Higher Education	-0.20	0.02	0.85	2.81*	1.01***	1.48***	1.03*	1.43 †
	(0.84)	(0.55)	(0.66)	(1.50)	(0.30)	(0.35)	(0.57)	(0.90)
Free Expression	-0.69	-0.78*	0.54	1.06	0.42	0.81**	0.35	0.34
	(0.66)	(0.45)	(0.60)	(1.20)	(0.35)	(0.40)	(0.49)	(0.76)
Qur'an Reading								
...Sometimes	-2.03**	-0.39	-0.07	-1.86	-0.91	-1.32*	-0.66	-3.83***
	(0.82)	(0.48)	(0.92)	(1.47)	(0.65)	(0.70)	(0.61)	(1.42)
...Most of the time	-1.48*	-3.34***	-1.70 †	-4.13**	-0.04	0.03	1.19*	3.31**
	(0.87)	(1.28)	(1.07)	(1.91)	(0.64)	(0.70)	(0.66)	(1.34)
...Always	-1.43	-1.91*	-2.00**	-7.33***	-0.67	-0.77	0.91	2.92**
	(1.65)	(1.12)	(1.00)	(2.57)	(0.63)	(0.67)	(0.66)	(1.20)
Opportunities								
Political Party	-18.92	-17.37	5.23***	26.34	0.44	0.24	0.91*	3.08***
	(16,915.97)	(6,828.91)	(2.16)	(32,392.00)	(0.77)	(0.83)	(0.47)	(1.13)
Civil Organization	2.51	-0.94	0.05	1.23	21.61	21.73	0.78	2.86*
	(36,748.88)	(33,331.13)	(1.58)	(4.96)	(17,011.51)	(16,593.22)	(0.72)	(1.55)
Internet for Politics	-0.98	(omitted)	1.73***	2.93**	0.94***	1.47***	1.38***	4.29***
	(1.29)		(0.65)	(1.33)	(0.30)	(0.35)	(0.50)	(1.33)
Friday Prayers								
...Sometimes	-1.54	-0.45	18.23	16.63	1.03**	1.70***	0.97	21.75
	(1.41)	(0.74)	(3,863.71)	(2,936.33)	(0.45)	(0.51)	(1.66)	(19,969.27)
...Most of the time	0.09	0.15	16.53	2.19	-0.08	-0.19	2.17	25.34
	(0.92)	(0.63)	(3,863.71)	(4,820.60)	(0.52)	(0.58)	(1.54)	(19,969.27)
...Always	-0.68	-0.29	18.36	20.09	0.43	0.59	2.66*	27.20
	(1.08)	(0.69)	(3,863.71)	(2,936.33)	(0.37)	(0.41)	(1.54)	(19,969.27)
Controls								
Age	0.48	0.48*	0.25	0.58	-0.18	-0.28*	-0.24	-0.11
	(0.49)	(0.25)	(0.27)	(0.64)	(0.14)	(0.16)	(0.29)	(0.51)
Age²	-0.007	-0.006**	-0.003	-0.007	0.003 †	0.004**	0.003	0.0001
	(0.007)	(0.003)	(0.003)	(0.008)	(0.002)	(0.002)	(0.004)	(0.007
Gender	1.82**	1.20**	0.33	1.91	1.02***	1.48***	-1.21**	-3.76***
	(0.85)	(0.52)	(0.72)	(1.92)	(0.32)	(0.36)	(0.51)	(1.23)
Constant	-9.49	-10.72**	-26.27	-35.94	0.46	0.80	1.44	-25.64
	(7.97)	(4.80)	(3,863.71)	(2,936.36)	(2.82)	(3.10)	(5.58)	(19,969.27)
Observations	257	795	511	494	252	241	228	200
Pseudo R^2 (Nagelkerke)	0.27	0.23	0.42	0.71	0.31	0.43	0.47	0.80

*Notes: Standard errors in parentheses. Significance level indicated by * p<0.10, ** p<0.05, *** p<0.01. † refers to statistical significance being very close to p<0.10. Original from Table 5.2. No R. refers to models without residuals.*

5.2.2.5 Causal Direction, Strength and Independence

Last but not least, for internally valid results some other statistical assumptions have to hold (see 3.4.1). I refer to these assumptions as direction, strength and independence of the causality.

The *causal direction* reflects the assumption that the causality is exogenous. Exogeneity means that the independent variables really cause the dependent variable, eliminating the possibility that the correlation is rather coincidental than causal. A threat to exogeneity is endogeneity bias. Endogeneity occurs when processes cause independent variables to correlate with the error term in the population regression of interest (Stock and Watson, 2012:368). Biased results as a cause of endogeneity can occur due to omitted variable bias, measurement errors, or simultaneity. The former two threats were already discussed in some detail, dispersing the potential of respective endogeneity bias for my models. Simultaneity causality bias means that causality flows in both directions: from independent variable to dependent *and* vice versa. It is implausible to assume that motivations or control variables like educational achievement, age or gender are caused by Arab Spring participation. The most likely variable that has a simultaneous impact is probably *internet usage for political matters* – which was already discussed and consequently excluded in the previous chapter. In order to dismiss simultaneity causality bias for any variable, it might be worth modelling the endogeneity effect with multiple equation systems, such as the 2-Stage Logistic Method or the Generalized Method of Moments (Rassen et al., 2009). However, these methods require identifying instrumental variables, which are unfortunately not available to me in the existent dataset of the Arab Barometer. But as discussed in some length previously (section 4.4), I presume that the overall causal direction of the other variables is exogenous.

The *causal strength* refers to the statistical power. The power assesses if the model is correctly rejecting the null hypotheses when they are not correct (Ellis, 2010). Therein, statistical power is important to avoid Type II errors (false negatives). The most important factors influencing statistical power are sample size and significance criteria (Ibid). The discussed significance levels ($p<0.1$, 0.05, 0.01) are the most commonly used criteria to assess 90%, 95% and 99% confidence intervals (as well as the near- significance level of 85%, $p<0.15$), and should thereby be sufficiently appropriate. The total sample size of above 1.000 respondents for each country is quite large and appears therein adequate. However, the sample size is reduced in the main models to some extent due to the inclusion of variables like *internet usage for political purposes,* as only respondents that actually use the internet (prior question) were asked

that question (and correspondingly included in my analyses, as other cases were treated as missing). This posits a challenge, as an often unexpressed, but important assumption of logistic regression is "an adequate number of events per independent variable to avoid an overfit of the model" (Stolzfus, 2011). As maximum likelihood estimation is less powerful than OLS, the recommended minimum of observations per variables is usually at least 10; but some scholars recommend as much as at least 30 cases for each variable (Ibid). Nevertheless, the results for multiple imputation (Table 5.4) increased the sample size while not altering results by much. Furthermore, I employed *bootstrapping* processes (repeated, random resampling of subgroups replacement from the original data) to additionally ensure robust estimations of my analyses (Ibid:1102). The bootstrap tests did not alter the results significantly, indicating hardly any problem with the strength of my results. Hence, it appears fair to assess that the overall causal strength is sufficiently solid, reflecting robust results and not just coincidences.

The *causal independence* concerns the independence of error terms and the non-collinearity of explanatory variables. A potential violation of independent error terms needs only be considered when the data is clustered hierarchically; which is not the case for my analyses. The other threat to independence is multicollinearity, which means that two or more independent variables highly correlate. Any such high correlation makes it difficult to assess which of the variables causes the real effect on the dependent variable. Also, the coefficient estimates are likely to be biased. By investigating tolerance values, eigenvalues and condition indices, I found no high correlation among any independent variables of my models. In order to further ascertain that multicollinearity does not impact results, I re-ran regressions excluding variables that correlated moderately with each other one-by-one. The results did not change extensively, indicating that causal independence of my models is sufficiently satisfactory.

5.2.3 External Validity

External validity refers to generalizability, which implies an assessment of the extent to which inferences can be generalized to other populations and settings (Stock and Watson, 2012:355). While internal valid results ensure that the causal relationship is basically correct within the context of a specific country and time, external validity indicates to what extent inferences are generalizable to other individuals, countries, or time periods.

One form of external validity regards the population *within* the specific countries I used in my analyses. In other words, how representative are the respondents included in the data of the

Arab Barometer for the entire population of a country? As discussed in some depth before, threats to this validity of representativeness, possibly caused by problems such as social desirability bias, non-response, or non-random sampling, are unlikely existent because of the experience and expertise of the Arab Barometer staff that conducted the surveys. Furthermore, as discussed in Chapter 3, I used a *weight* variable that accounted for imbalances in factors such probability of selection. Thus, there should be reasonably stable within-case generalizability, allowing for generalization of my findings to the entire population of my selected cases of Algeria, Jordan, Tunisia, and Yemen.

The other, more complex form of external validity concerns *across*-case generalizability. Put differently, to what extent do my findings hold for other Arab countries in the context of the Arab Spring; or even more extreme: to what extent do they hold for protest participation in any country at any given point in time? Assessing such external validity obviously requires making judgments about similarities and differences in populations and settings between those under study and those to which they are generalized (Stock and Watson, 2012:381). In doing so, discretion is advised.

As evident from Table 4.4, other Arab countries like Morocco and Egypt hold similar results to my selected four cases, respectively to each having experienced regime leadership change or not. This suggests that findings are to some degree generalizable to other countries of the Arab world. However, we need to be cautious to not be over-confident in such generalizability. For example, for countries that currently experience ongoing civil war, such as Syria or Libya, comparable results are unlikely to hold. In fact, the lack of data on cases like Syria makes it infeasible to investigate any potential generalizability. Furthermore, there is a simple lack of *positive* cases that experienced regime leadership change (only four countries, from which I already included 3 in Table 4.4). Finally, even if such data, or more available "positive" cases, would exist, it would also be important to take into account the countries' unique statuses (e.g. developmental progress), individual manifestations, and divergent transitional progresses as a result of uprisings in each country, as also previously discussed in section 4.4.[69] Regarding the religiosity of all Muslims across the globe, for instance, there exists an enormous diversity among the importance of religion, the frequency of prayer, mosque attendance, almsgiving, and so forth (Pew Research Center, 2012). If my model is then applied

[69] Recall that I chose the four countries (Algeria, Jordan, Tunisia, Yemen) not only for pragmatic reasons (data availability), geographical proximity and so forth, but also based on them reflecting very divergent cases in the region (oil wealth, monarchy, etc.). This discrepancy was chosen intentionally to allow for generalizability.

to other (Muslim) countries in the world, this divergence would most likely impact results for at least the religious variables included in my analyses.

This suggests that besides rather weak limitations of generalizing among the Arab countries, generalizability beyond the Arab world appears to be more problematic. First, the lack of data that includes identical measures of feelings, perceptions and attitudes (such as *perception of unequal treatment)* as measured by the Arab Barometer makes it difficult to conduct corresponding analyses elsewhere in the world. This lack of data is usually attributed to the costly (time-consuming, finances, human resources, etc.) and complex foundations, which conducting surveys in hostile environments is commonly known for. To be clear, there exists expert data on public attitudes for other parts of the world, such as the Afrobarometer for African country or the Latinobarómetro for Latin American countries. My point here is, however, that there are often no *identical* (or at least very similar and thus comparable) measurements of variables that can be reasonably compared with my findings; let alone the divergence of regional distinct matters such as different religions, customs, and traditions throughout the world can have. Second, as discussed in the introductory chapter, there appears to be a lack of theoretical academic work on movements within the Arab world, as Arab movements are argued to distinguish themselves from the traditional (Western) sense of social movements. Thus, not only differences in populations, but also differences in settings are threats to external validity (Stock and Watson, 2012:356-7). Such differences are mostly noticeable in societal elements such as the role of religion vis-à-vis social media within the Arab public sphere, or cultural traditions and values such as the role of women within society (Hellyer, 2013). Third, the Arab Spring is a quite recent phenomenon with events still unfolding and repercussions remaining uncertain. As the cases of Yemen, Libya or Syria demonstrate, for example, it is difficult to predict the final outcomes of the turmoil in each country that "officially" started in Tunisia in late 2010, but really had its origins in the growing frustrations and demands for more equal treatment throughout the decade before.

This argument illustrates that potential generalizability across cases outside the Arab world appears too early to acknowledge. Once the consequences of the Arab Spring are interpretable in retrospect, and once the corresponding and comparable data is available for other countries, it will be possible to investigate in more depth how generalizable my findings are for protest behavior in other regions of the world. Suffice it to say, however, that my contribution to the grievance-opportunity debate highlights that both approaches should be applied in a complementary manner if analyzing the root causes for protest participation (and not just civil war

scenarios). This approach of grievances and opportunities being partner terms that must be understood in a complementary pattern coincides with the findings of Keen's (2008) causes of conflicts for African cases, such as Sierra Leone. All in all, generalizability across cases among the region of Arab countries appears fairly satisfactory, while generalizability to countries outside the Arab world (and/or across time) appears rather weak; at least until new, comparable data becomes available that allows testing for such generalizability properly.[70]

5.3 Concluding Remarks

In conclusion, this chapter investigated the robustness of my analyses made in Chapter 4. By evaluating various challenges to the reliability and validity of my models, I conclude that my findings are sufficiently unbiased and efficient. My results appear to be overall reliable and internally valid – with the single potential limitation of endogeneity bias. Generalizability within cases is warranted, but generalizability across cases other than to the region should be considered with caution. All in all, the robustness diagnostics appear to stabilize the predictive success of my models sufficiently well.

[70] For a comparison across time, see for instance Anderson (2011).

6 Conclusion

The Arab Spring and its still unfolding repercussions continue to demand worldwide attention. At the time of writing, a Saudi-led coalition is combating the Houthi takeover in Yemen, some countries like Syria and Libya remain deeply entrenched in civil wars causing hundreds of thousands of refugees to be displaced, ISIL remains a regional challenge to overcome, and few, if any, Arab countries experienced the fulfilment of initial demands made by protesters during the Arab Spring, such as the establishment of *liberal* democratic values and institutions or the betterment of economic conditions. That is to say that any current explanation of the protest activity and corresponding developments in the Arab region must necessarily remain incomplete. Events are still unfolding and it will be some time until all aspects of the highly complex regional developments can be fully understood. Nonetheless, some aspects can – and indeed *should,* since they are time-sensitive – already be analyzed and discussed, such as the perceptions and attitudes that moved Arab citizens to take to the streets.

This thesis contributes to the literature on social movements by analyzing the root causes for protest participation in the Arab Spring from the participants' viewpoint. I argued that the grievance-opportunity debate does not restrict itself to armed conflict of civil war, but can be expanded to (often) non-violent protest activities as well. Within this theoretical foundation, I argued – in agreement with scholars like Keen (2008) or Dalton et al. (2009) – that motivations (based on grievances) and opportunities (that facilitate desire for change) do not necessarily contradict each other, but often play a complementary role in explaining protest participation. My findings support this contention.

More specifically, I employed survey data from 2013/14 to statistically analyze the extent to which grievances and opportunities contributed to protest participation in the Arab Spring. For my cases, I chose two countries that experienced regime leadership change (Tunisia and Yemen) and two that did not (Jordan and Algeria). The findings suggest that perceptions of being treated unequally in comparison to other citizens were ultimately the most consistent *motivation* for protest participation in all four countries. Other motivations, like youth unemployment, the level of educational achievement, freedom to express opinions, and frequency of Qur'an reading – while significantly explanatory in some cases – played a less consistent explanatory role. Regarding *opportunities* promoting protest participation, I found that being a member of a political party and/or civil organization and using the internet for political pur-

poses tend to contribute to explaining Arab Spring participation in all four cases. A more frequent attendance at religious gatherings, such as Friday Prayers, appears to only have increased the likelihood of participation in countries that experienced regime leadership change (e.g. Tunisia, Yemen).

These findings are fairly robust, reflecting internally valid and reliable results. Alternative operationalizations and specifications, as well as other robustness diagnostics, indicate that there is sufficient reason to be overall confident in the findings of my study. Generalizability to other populations and settings within the region is fairly satisfactory; but generalization outside the region should be done cautiously, as some explanatory variables carry a high degree of regional specific uniqueness (e.g. frequency of Qur'an reading), for instance.

Besides this lack of profound external validity, another challenge to my research is the potential of endogeneity bias. For instance, I cannot be entirely certain that Arabs participated in the protests because the opportunity of attending religious gatherings incited them to protest. Instead, they might as well just have attended such gatherings *after* they protested; for example to stay informed about events. The same goes for the usage of the internet for political matters, as "a significant increase in the use of the new media is much more likely to follow a significant amount of protest activity than to precede it" (Wolfsfeld et al., 2013). In a similar fashion, motivations such as perceptions of unequal treatment might have spread through discourses among individuals *at* the actual protests, causing protest participants to be more frustrated after they took to the streets as they now had shared feelings of dissatisfaction among a larger group.

6.1 Policy-Recommendations

Despite these limitations, this thesis makes a considerable contribution to the existent literature of protest participation by highlighting the motivations and opportunities of actual protest participants in the Arab Spring. There are some fundamental issues deducible from my analyses which are worth paying close attention to, especially for policy- and decision-makers with influence in the region.

One such issue regards the question of generational influence in the region. The revolutions spread largely by young, technology-savvy Arabs, while the backlash was organized by the older generation established in high governmental and other influential positions. This posits the question if there is a massive generational shift in society, how will the Arab youth –

which is more prone to accept Western norms like human rights, equal participation and citizenship, etc. – from the entire spectrum of society organize themselves in the coming years (Al Jazeera, 2015e)? Another issue concerns identity, which entails questions about the possibility of reconciling ethnic and religious nationalism in the pluralist Arab world; a requirement to unify the people under a state system that acknowledges both diverging ethnicities and religious branches. A further issue regards the extent of impact new social media, such as the internet, actually had on the social movements in comparison to traditional social media like television (Chorev, 2012).[71] Moreover, the effect of globalization on social media in the MENA-countries might be worth investigating, alluding to questions like to what extent protest participants compare their situations with individuals outside their region, therein potentially perceiving being treated unequally in comparison with Western citizens, for example (Haynes, 2010). Besides these issues of youth, identity, social media, and globalization, another issue that policy-makers should be aware of is the unique role of religion and cultural traditions vis-à-vis violence and politics in the Arab world (Perumalil, 2004; Snyder, 2011; Toft et al., 2011; The Economist, 2013).[72]

While I have focused on micro-level factors (motivations and opportunities) that play a determinant part in explaining Arab Spring participation, it is crucial to recall that macro-level factors (outlined in Chapter 1) are also important. As I have argued before, my micro explanations should be regarded as a complementary part to the macro-level explanations to provide a better understanding of participation in social movements. Thus, it is also crucial to not dismiss the equally important role of macro-factors. The developments of the Arab Spring signify how important it is that development agendas are sensitive to political contexts and basic geo-political aspects, such as the type of governance system, access to natural resources, alliances or disputes with foreign actors, the degree of rule of law and associated liberties, or the justification of state systems. Thus, only a combination of improvements in *both* government (macro-level) and society (micro-level) can overcome the mixture of social, economic and political frustrations, vanquishing challenges and needs of the people, and ensuring the establishment of effective, fair and democratic institutions and societies.

Accordingly, some policy recommendations that should enable surmounting challenges of social movements include the following. In order to mitigate potential future threats of uprisings, Breisinger et al. (2012:28-33) suggest to improve the data and capacity for evidence-

[71] A forthcoming research project investigates this question; see Roald and Wellbaum (forthcoming).
[72] The Arab Spring led to more global restrictions on religion; see for instance Pew Research Center (2013b). For a comprehensive review on the role of Islamism in the region, see amongst others Hall (2003), Toft (2007), Lynch (2015).

based decision-making, foster growth that enhances food security, and revisit the efficiency and allocation of public spending. Among others, Thiemann (2011:25) suggests a variety of other reform measures, such as establishing employment generation programs (e.g. support for small and medium-sized enterprises, micro finance), supporting the poor, improving governance-business relations, promoting regional integration for market extension and diversification, supporting local economic development and job creation, and stimulating policy support as well as macro, fiscal and financial stability. Furthermore, Earle (2011:7) argues that international organizations and donors should concentrate on creating supportive environments for social movements, e.g. by supporting communications beyond capital cities, working with media outlets, governments, and public agencies to promote equal understanding and redress injustice collectively, or promoting avenues for state-society engagement at an early stage. While these lists of recommendations are long, they are by no means exhaustive. And while it is implausible to suggest that every issue can be solved at once, it is nonetheless essential to be aware of all these problematic issues. After all, a concrete plan to address challenges can only succeed if the root problems are identified and acknowledged.

Moreover, what appears evident from my analysis is that opportunities for discussion, dialogue and interaction among individuals are as important as individual grievances and frustrations in causing protest participation. Therein, organizations that aim to promote democratization and social change in authoritarian regimes should focus on providing platforms for meaningful, intellectual interactions among individuals in society. These interactions are essential since they are the motor behind inciting motivations through transforming individual grievances into *shared* feelings of group dissatisfaction, which in turn spark protest participation. Therein, opportunity platforms like the internet will most likely allow for much easier communication in future years to come, once vast broadband coverage has been established throughout the region. This will most likely happen within the span of one generation, as the youth nowadays already use the internet through mobile phone devices even in very remote areas of developing countries.

Another area of consideration for policy-makers lies in the Arab Spring's influence on a potential shift in EU (and U.S.) policy, especially in regards to migration, energy security, and dynamic stability (Asseburg, 2012). An essential lesson that the Arab Spring has taught us is that Western influence on the outbreak or the course of the revolutions was – and still remains – limited, at best (Perthes, 2012:67). Two other important lessons that are noteworthy suggest that revolutions appear to be contagious (as they have a tendency to migrate regionally) and

that external conflicts do not save regimes in that externalization of conflicts offers no protection against dissatisfied citizens (Ibid:68).[73]

6.2 Future Research

In order to further acknowledge the complementary role of grievances and opportunities in social movements, comprehensive and comparable data from a wide range of diverging cases needs to be gathered, analyzed and discussed. Future research should focus on confirming the external validity of my results by gathering comparable data for other regions in order to replicate my results for these. In addition, future research should investigate the potential endogeneity threat of my models by attaining instrumental variables and conducting multiple equation system tests, as discussed in Chapter 5.[74]

Future research should also investigate other issues of contention that I was unable to discuss here, mostly due to time and space constraints as well as the lack of available data. One approach would be to investigate the reforms or other concessions some Arab leaders implemented (or strategies and tactics they employed) to stay in power, and closely analyze corresponding implications these had on social movements. On another note, there seems to be a gap of qualitative research on the interaction between social movement members and state officials or even movement leaders themselves, which "would allow for greater understanding of individual motivations (or lack of) to engage in collective action." (Earle, 2011:31). Such research on the interaction between different actors could, for instance, focus on the relationship between monarchs and their citizens, thereby expanding on the analysis of the resilience of Arab monarchies.

Further research is also needed on the nexus of social movements, violence, and instability, which would allow for a deeper understanding of the reasons and factors behind the potential of social movements turning into violent conflicts like civil wars (Ibid:31). In which ways does violence in social movements contribute to instability of governments and potential regime change, for example? Another approach could also look at previously established democratic institutions in authoritarian settings and how these impacted citizen's desires for democracy. Furthermore, future work should reflect on more multi-level analyses to concretize

[73] Perthes (2012:67-9) identifies 10 lessons and challenges from the Arab revolutions for international politics. I only mention the ones I consider to be most important here.

[74] It could also be argued that opportunities are more likely to play a role at a later stage of mobilization for protest, while the initial motivations arise before. Naturally, one would think that one has to be motivated to act before searching for opportunities to act upon these motivations. While I argue that motivations and opportunities reciprocally affect each other, this contention deserves further research as well.

the relationship between micro- and macro-level factors and their respective roles in social movements. For example, it might be interesting to identify the specific causal mechanisms that explain how the global financial crisis affected the Arab countries individually and how each country's citizens dealt with its consequences.

Also, more in-depth case studies of the history of individual countries and their previous mobilization, including outside the Arab region, are likely to contribute to a better understanding on the reasons behind the Arab Spring movements. For example, Lawrence (2012) argues that since there exist too few cases that experienced regime transition in the Arab Spring, which makes it difficult to concretely evaluate the phenomenon, "engaging in comparative research that looks over time and outside the region is a fruitful way to evaluate competing explanations for protest."[75] In fact, I began this thesis by reviewing the notion of the Arab uprisings coming at a *surprise* for many authors (see Chapter 1). However, I contend that these uprisings are in fact not that surprising if recounting for previous developments in individual countries, which led to the growth of dissatisfaction and frustrations among Arabs over decades (Ibid). This apparent challenge of not only paying attention to a specific time period (but also take into account longer time-series developments) is often undermined by social media's efforts in *priming* stories that most likely attract the highest audience. The example of the disparity of attention and casualties among global conflicts illustrates this argument of such social media bias quite fairly (The Economist, 2014c).

6.3 Final Remarks

As I hope I have shown in this thesis, the Arab Spring is a highly complex phenomenon which aftermath cannot be fully understood yet. However, it appears fair to assess that a combination of various factors impacted the occurrence of uprisings in the Arab world by the end of 2010. These factors range from technological developments in social media over decade-old economic challenges (that worsened with the global financial crisis starting in 2008/9) over growing dissatisfactions of unfair treatment as well as other frustrations about corruption, tactics of fear, suppression of basic freedoms in choosing one's own destiny or the lack of representation in politics, lack of dignity, and injustice in general.[76]

What will the future hold for the Arab world, especially for those countries that have not yet "erupted" significantly? Will they manage the balancing act between upholding traditional

[75] For an overview of estimated deaths of civil wars in the Middle East (1975-2014) as well as a discussion on why the "failures of the Arab Spring were a long time in the making", see among others The Economist (2014d).
[76] For more information on the impact of the global financial crises in 2008/9, see among others Ramady (2014).

roles while attempting to adhere to modern political demands? Eyadat (2012:18) argues that "based on social conditions, Algeria, Sudan, and Lebanon may likely join the Arab revolutions of 2011." On the other hand, monarchies of the MENA-region were mostly able to resist change through various measures, such as extended family ruling, increased public spending, and incremental liberalization. Nonetheless, scholars like Ramady (2014) assert that the GCC monarchies are "shielded, but not immune," reflecting "islands of prosperity [which] are surrounded by hunger and anger." Thus, it remains uncertain how much the short-term adaptability will ensure security and stability for monarchies in the long term (Matthiesen, 2013). Davidson (2014) makes an even bolder prediction, suggesting that the "monarchies and emirates of the Arabian Peninsula will collapse within the next five years." However, even if change is to occur in other countries, *stable* and *liberal* democratic systems will unlikely be established in the short term (Way, 2011; Osman, 2014).

All in all, I believe it is too early to predict what will happen, as there is a lack of information on the highly complex developments in the Arab region and, as noted before, events are still unfolding with uncertain repercussions. As recent years have shown, there is a great possibility for the creation of failed states. International interventions, like that of NATO in Libya or the recent Saudi-led coalition in Yemen, and other developments like the vast amount of refugees, sectarian tensions, and great economic challenges all pose difficult problems to the stability and political legitimacy in the transformative processes of Arab countries. It is important, however, to acknowledge that these transformations also provide promising opportunities for moderating Islamism and providing peace in the region. Indeed, an article by the Arab Reform Initiative (2014:1) stated that "there has been a positive but slow progress towards democratic change" in the Arab world. As the case of Tunisia with its establishment of a new government and constitution suggests, there are political answers to many of the problems. In fact, Hegre et al. (2001:44) argue that the "conflict-generating effect of democratization when moving from autocracy to intermediacy produces violence i*n the short run only*" (my emphasis). But with a high degree of uncertainty of what is to come, history will have to judge the Arab uprisings and their consequences.

Finally, it seems worth remembering that the Arab *Spring*, as the notion suggests, was a moment of hope. The fundamental desire for change pushed for by the social movements included, at least initially, demands for justice and equal treatment. This established the prospect for democracy as a universal value in many parts of the MENA-region. This development alone is noteworthy, as it refutes Huntington's (1996) controversial argument that religion, in par-

ticular Islam, would set major limitations to further democratization. Furthermore, it could be suggested that each country is unique, with its own characteristics and institutions, which makes it difficult to compare them with each other. However, as I believe I have shown here, there are fundamental similarities in the motivations and opportunities that move people to participate in protests. Through direct action of citizens joining grass-root movements, Arabs from all spectrums of society overcame collective action problems and made themselves heard in the Arab uprisings, creating realities that authorities eventually have to abide by; be that through policy reform, incremental liberalization or more radical change. In short, pressure from below was a highly important element for change in the MENA-region, as the absence of grassroots movements would have most likely been worse for the region (Bayat, 2000:29). In the end, the developments in the Arab region should – and most likely will – not be easily forgotten in the near future.

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Appendix 1: Descriptive Statistics

Table A.1: Descriptive Statistics, Algeria, AB wave 3

	Observations	Min	Max	Mean	Std. Dev.
Dependent Variable					
Arab Spring Participation	1135	0	1	0.04	0.197
Motivations					
Equal Treatment	1157	0	1	0.68	0.467
Unemployment	1219	0	1	0.11	0.307
Youth	1220	0	1	0.26	0.440
Unemployment*Youth	1220	0	1	0.496	0.217
Higher Education	1220	0	1	0.18	0.388
Free Expression	1093	0	1	0.73	0.445
Qur'an Reading	1040	0	3	1.40	0.961
Opportunities					
Political Party	1211	0	1	0.03	0.181
Civil Organization	1210	0	1	0.01	0.074
Facebook	554	0	1	0.73	0.443
Internet for Politics	392	0	1	0.14	0.346
Friday Prayers	1037	0	3	1.75	1.196
Controls					
Age	1220	18	83	38.26	15.344
Gender	1220	0	1	0.50	0.500
Political Interest	1060	0	1	0.15	0.359
Robustness Diagnostics:					
Alternative Operationalizations					
Economic Situation	1151	0	1	0.70	0.459
Living Conditions (compared)	1187	0	1	0.85	0.360
Education*Unemployment	1220	0	1	0.01	0.113
Support Pol. Freedom	1178	0	1	0.99	0.104
Self-perception Religious	1117	0	2	1.17	0.569
Protest/Sit-in Participation	1209	0	1	0.08	0.267
Omitted Variable Bias					
Corruption	1098	0	1	0.86	0.347
Government Blocks Media	869	0	1	0.53	0.499
Against Democracy	1122	0	1	0.13	0.338
Laws Enacted via People's Wishes	1093	0	1	0.56	0.496
Laws Enacted via Islamic Law	1078	0	1	0.86	0.343
Religion in Politics	1059	0	1	0.49	0.500
Global Connectivity	1141	0	2	1.16	0.900
Arab-Israel Conflict	1139	0	1	0.35	0.477
Foreign Influence	1138	0	1	0.71	0.453
Marital Status	1220	0	1	0.49	0.500

Table A.2: Descriptive Statistics, Jordan, AB wave 3

	Observations	Min	Max	Mean	Std. Dev.
Dependent Variable					
Arab Spring Participation	1777	0	1	0.03	0.164
Motivations					
Equal Treatment	1775	0	1	0.68	0.465
Unemployment	1790	0	1	0.09	0.279
Youth	1795	0	1	0.27	0.443
Unemployment*Youth	1795	0	1	0.05	0.209
Higher Education	1794	0	1	0.21	0.405
Free Expression	1657	0	1	0.68	0.468
Qur'an Reading	1786	0	3	2.18	0.966
Opportunities					
Political Party	1791	0	1	0.01	0.055
Civil Organization	1777	0	1	0.01	0.080
Facebook	763	0	1	0.62	0.486
Internet for Politics	532	0	1	0.16	0.369
Friday Prayers	1765	0	3	2.20	1.154
Controls					
Age	1795	18	78	36.95	14.489
Gender	1795	0	1	0.52	0.500
Political Interest	1523	0	1	0.35	0.478
Robustness Diagnostics:					
Alternative Operationalizations					
Economic Situation	1780	0	1	0.45	0.498
Living Conditions (compared)	1787	0	1	0.77	0.423
Education*Unemployment	1794	0	1	0.02	0.151
Support Pol. Freedom	1683	0	1	0.91	0.291
Self-perception Religious	1788	0	2	1.33	0.558
Protest/Sit-in Participation	1776	0	1	0.04	0.199
Omitted Variable Bias					
Corruption	1665	0	1	0.88	0.328
Government Blocks Media	1307	0	1	0.62	0.485
Against Democracy	1612	0	1	0.42	0.494
Laws Enacted via People's Wishes	1697	0	1	0.55	0.498
Laws Enacted via Islamic Law	1696	0	1	0.86	0.344
Religion in Politics	1639	0	1	0.43	0.496
Global Connectivity	1692	0	2	1.65	0.707
Arab-Israel Conflict	1598	0	1	0.82	0.387
Foreign Influence	1583	0	1	0.86	0.344
Marital Status	1795	0	1	0.27	0.445

Table A.3: Descriptive Statistics, Tunisia, AB wave 3

	Observations	Min	Max	Mean	Std. Dev.
Dependent Variable					
Arab Spring Participation	1195	0	1	0.21	0.407
Motivations					
Equal Treatment	1175	0	1	0.53	0.499
Unemployment	1199	0	1	0.24	0.426
Youth	1199	0	1	0.24	0.428
Unemployment*Youth	1199	0	1	0.09	0.291
Higher Education	1199	0	1	0.16	0.367
Free Expression	1131	0	1	0.78	0.413
Qur'an Reading	1178	0	3	2.22	0.969
Opportunities					
Political Party	1195	0	1	0.02	0.141
Civil Organization	1190	0	1	0.01	0.073
Facebook	438	0	1	0.70	0.458
Internet for Politics	0.317	0	1	0.51	0.501
Friday Prayers	1174	0	3	1.25	1.319
Controls					
Age	1199	18	87	39.39	15.934
Gender	1199	0	1	0.49	0.500
Political Interest	999	0	1	0.56	0.497
Robustness Diagnostics:					
Alternative Operationalizations					
Economic Situation	1186	0	1	0.12	0.323
Living Conditions (compared)	1192	0	1	0.75	0.431
Education*Unemployment	1199	0	1	0.04	0.201
Support Pol. Freedom	1147	0	1	0.89	0.310
Self-perception Religious	1187	0	2	1.17	0.681
Protest/Sit-in Participation	1171	0	1	0.15	0.355
Omitted Variable Bias					
Corruption	1041	0	1	0.79	0.404
Government Blocks Media	1049	0	1	0.57	0.496
Against Democracy	1057	0	1	0.45	0.498
Laws Enacted via People's Wishes	1138	0	1	0.68	0.468
Laws Enacted via Islamic Law	1130	0	1	0.62	0.486
Religion in Politics	1087	0	1	0.24	0.429
Global Connectivity	1101	0	2	1.76	0.585
Arab-Israel Conflict	1077	0	1	0.60	0.489
Foreign Influence	1094	0	1	0.73	0.446
Marital Status	1199	0	1	0.36	0.480

Table A.4: Descriptive Statistics, Yemen, AB wave 3

	Observations	Min	Max	Mean	Std. Dev.
Dependent Variable					
Arab Spring Participation	1107	0	1	0.39	0.487
Motivations					
Equal Treatment	1171	0	1	0.36	0.480
Unemployment	1200	0	1	0.09	0.293
Youth	1200	0	1	0.30	0.460
Unemployment*Youth	1200	0	1	0.04	0.202
Higher Education	1195	0	1	0.06	0.234
Free Expression	1105	0	1	0.54	0.499
Qur'an Reading	1180	0	3	1.43	1.100
Opportunities					
Political Party	1160	0	1	0.41	0.492
Civil Organization	1156	0	1	0.07	0.247
Facebook	333	0	1	0.79	0.408
Internet for Politics	191	0	1	0.50	0.501
Friday Prayers	1151	0	3	2.28	1.015
Controls					
Age	1200	18	81	35.46	13.444
Gender	1200	0	1	0.51	0.500
Political Interest	1032	0	1	0.39	0.488
Robustness Diagnostics:					
Alternative Operationalizations					
Economic Situation	1184	0	1	0.28	0.447
Living Conditions (compared)	1184	0	1	0.65	0.477
Education*Unemployment	1200	0	1	0.01	0.104
Support Pol. Freedom	1151	0	1	0.89	0.317
Self-perception Religious	1179	0	2	1.15	0.603
Protest/Sit-in Participation	1191	0	1	0.51	0.50
Omitted Variable Bias					
Corruption	1134	0	1	0.90	0.305
Government Blocks Media	796	0	1	0.49	0.500
Against Democracy	1123	0	1	0.33	0.469
Laws Enacted via People's Wishes	1157	0	1	0.53	0.499
Laws Enacted via Islamic Law	1177	0	1	0.90	0.298
Religion in Politics	1146	0	1	0.50	0.500
Global Connectivity	1129	0	2	1.30	0.813
Arab-Israel Conflict	1113	0	1	0.56	0.497
Foreign Influence	1111	0	1	0.78	0.411
Marital Status	1200	0	1	0.28	0.448

Note: Descriptive Statistics for each country's respective variables for AB wave 2 are available upon request.

Tables A5 to A8 provide correlation matrices for the main variables used in my analyses. Each table provides bivariate (Pearson) correlations. Any further correlation matrices are available upon request.

Table A.5: Correlation Matrix, Algeria, AB wave 3

	Arab Spring Part.	Equal Treatment	Unemploym.	Youth	Youth Unemploym.	Higher Education	Free Expression	Qur'an Read.	Political Party	Civil Org.	Facebook	Internet for Pol.	Friday Prayers	Age	Gender
Arab Spring Part.															
Equal Treatment	-0.081**														
Unemployment	0.064*	-0.220**													
Youth	0.058*	-0.075*	0.162**												
Youth Unemployment	0.035	-0.128**	0.666**	0.383**											
Higher Education	0.019	0.039	-0.054	0.158**	-0.026										
Free Expression	-0.110**	0.243**	-0.030	-0.026	-0.026	0.027									
Qur'an Reading	-0.140**	0.086**	-0.040	-0.156**	-0.051	-0.062*	0.206**								
Political Party	-0.039	0.090**	0.007	-0.014	0.004	0.107*	0.064*	0.015							
Civil Organization	-0,01	0,03	-0,03	0,02	-0,02	0,136**	0,05	-0,04	0,154**						
Facebook	0,07	0,01	-0,05	0,293**	0,00	0,07	0,01	-0,04	0,04	0,06					
Internet for Politics	-0,02	-0,01	-0,140**	0,04	-0,09	0,203**	0,06	0,04	0,146**	0,278**	0,184**				
Friday Prayers	-0,02	-0,06	0,05	-0,137**	0,00	-0,067*	-0,01	0,386**	0,04	-0,06	-0,08	-0,04			
Age	-0,100**	0,140**	-0,214**	-0,638**	-0,230**	-0,223**	0,01	0,184**	0,05	-0,03	-0,347**	0,02	0,225**		
Gender	0,103**	-0,102**	0,108**	-0,01	,072*	0,02	-0,01	0,102**	0,100**	0,00	-0,04	0,00	0,487**	0,02	
Political Interest	-0,01	0,101**	-0,080**	-0,112**	-0,06	0,148**	0,090**	0,06	0,165**	0,089**	-0,138**	0,276**	0,131**	0,086**	0,180**

Note: ** means correlation is significant at the 0.01 level (2-tailed). * means correlation is significant at the 0.05 level (2-tailed).

Table A.6: Correlation Matrix, Jordan, AB wave 3

	Arab Spring Part.	Equal Treatment	Unemploym.	Youth	Youth Unemploym.	Higher Education	Free Expression	Qur'an Read.	Political Party	Civil Org.	Facebook	Internet for Pol.	Friday Prayers	Age	Gender
Arab Spring Part.															
Equal Treatment	-,048*														
Unemployment	,001	-,036													
Youth	,060*	,020	,185**												
Youth Unemployment	,015	-,022	,717**	,362**											
Higher Education	,102**	-,016	,051*	-,064**	,028										
Free Expression	-,006	,158**	,015	,019	,029	-,033									
Qur'an Reading	-,042	,006	-,054*	-,201**	-,095**	-,007	-,006								
Political Party	,282**	-,025	-,017	-,028	-,012	,067**	,018	-,007							
Civil Organization	,163**	,014	,040	,034	,049*	,051*	,032	-,023	,026						
Facebook	,035	-,036	,021	,248**	,058	-,004	-,033	-,159**	-,039	,033					
Internet for Politics	,182**	-,078	,069	-,112**	-,014	,187**	,011	,087*	,165**	,189**	,038				
Friday Prayers	-,026	,048*	-,036	-,160**	-,070**	,052*	-,023	,351**	,025	,000	-,119**	,086*			
Age	-,019	-,022	-,136**	-,653**	-,229**	-,044	-,028	,266**	,037	-,031	-,305**	,122**	,197**		
Gender	,076**	-,016	,076**	,021	,021	,014	-,023	-,211**	,037	,061**	,077*	,031	,173**	,028	
Political Interest	,115**	,033	-,032	-,120**	-,045	,189**	,097**	,094**	,081**	,105**	-,077	,456**	,110**	,045	,088**

Note: ** means correlation is significant at the 0.01 level (2-tailed). * means correlation is significant at the 0.05 level (2-tailed).

Table A.7: Correlation Matrix, Tunisia, AB wave 3

	Arab Spring Part.	Equal Treatment	Unemploym.	Youth	Youth Unemploym.	Higher Education	Free Expression	Qur'an Read.	Political Party	Civil Org.	Facebook	Internet for Pol.	Friday Prayers	Age	Gender
Arab Spring Part.															
Equal Treatment	-,046														
Unemployment	,060*	-,077**													
Youth	,235**	-,014	,199**												
Youth Unemployment	,101**	-,023	,575**	,570**											
Higher Education	,244**	,076**	,024	,095**	,008										
Free Expression	,033	,056	,001	-,098**	,003	,033									
Qur'an Reading	-,015	,054	-,065*	-,159**	-,088**	,024	,063*								
Political Party	,109**	,037	-,054	-,072*	-,033	,092**	,020	,084**							
Civil Organization	,113**	,023	-,041	-,032	-,023	,081**	,031	,018	,078**						
Facebook	,064	-,016	-,020	,090	-,008	,167**	-,120*	-,130**	,061	,028					
Internet for Politics	,189**	,046	-,026	-,046	-,098	,112*	-,086	,201**	,173**	,073	,293**				
Friday Prayers	,087**	,073*	-,049	-,163**	-,065*	,035	,055	,290**	,085**	-,003	-,097*	,105			
Age	-,223**	,045	-,249**	-,631**	-,353**	-,172**	,044	,147**	,056	,030	-,163**	,005	,238**		
Gender	,288**	-,062*	,142**	,099**	,046	,070*	-,058	-,149**	,097**	,003	,020	,101	,242**	-,017	
Political Interest	,222**	,083**	-,044	-,037	-,062*	,119**	,138**	,116**	,104**	,056	-,038	,300**	,047	,006	,111**

Note: ** means correlation is significant at the 0.01 level (2-tailed). * means correlation is significant at the 0.05 level (2-tailed).

Table A.8: Correlation Matrix, Yemen, AB wave 3

	Arab Spring Part.	Equal Treatment	Unemploym.	Youth	Youth Unemploym.	Higher Education	Free Expression	Qur'an Read.	Political Party	Civil Org.	Facebook	Internet for Pol.	Friday Prayers	Age	Gender
Arab Spring Part.															
Equal Treatment	,083**														
Unemployment	,048	,003													
Youth	,010	,025	,102**												
Youth Unemployment	-,010	-,010	,653**	,319**											
Higher Education	,153**	,086**	,081**	-,085**	,012										
Free Expression	,195**	,338**	-,007	-,056	-,044	,076*									
Qur'an Reading	,100**	,127**	,001	-,075**	-,052	,023	,048								
Political Party	,233**	,064*	-,014	-,061*	-,037	,052	,090**	,011							
Civil Organization	,235**	,161**	,015	-,090**	,016	,134**	,162**	,093**	,104**						
Facebook	,036	,065	-,097	,045	-,075	,002	,104	-,022	,236**	,029					
Internet for Politics	,361**	,321**	-,066	-,312**	-,138	,186*	,282**	,053	,351**	,335**	,245**				
Friday Prayers	,219**	,151**	-,011	-,075*	-,052	,067*	,161**	,395**	-,034	,125**	,013	,175*			
Age	-,125**	-,011	-,131**	-,672**	-,211**	-,053	-,044	,078**	,023	-,014	-,159**	,124	,065*		
Gender	,159**	-,007	,125**	-,005	,084**	,154**	,068*	-,039	,199**	,085**	-,062	-,050	,066*	,053	
Political Interest	,281**	,207**	,032	-,130**	-,023	,128**	,305**	,010	,207**	,230**	,115*	,679**	,206**	,011	,219**

Note: ** means correlation is significant at the 0.01 level (2-tailed). * means correlation is significant at the 0.05 level (2-tailed).

Appendix 2: Variable Coding

This section provides an overview of the variables used in my analyses (corresponding information on variables used in the robustness diagnostics are available upon request). I recoded all variables in such a manner that 0 presents a negative answer and 1 (or higher) a positive response. All variables are available by accessing the data of wave 2 and 3 of the Arab Barometer (2014).

- **Dependent Variables**

The Arab Spring led to some demonstrations and rallies in your country. Did you participate in any of these events (in 2011 and 2012)?

- Yes [1]
- No [0]

During the past three years, did you participate in a protest, march, or sit-in?

- Once or more than once [1]
- I have never participated [0]

- **Independent Variables:**

To what extent do you feel that you are being treated equally compared to other citizens in your country?

- To a great/medium extent [1]
- To a limited extent/Not at all [0]

Do you work?

- Yes [1]
- No [0]

Youth (Age recoded)

- 18-25 [1]
- Older than 25

Education [Level of Education recoded)

- Above Secondary Education [1]
- Up to Secondary Education [0]

To what extent do you think that "freedom to express opinions" is guaranteed in your country? (includes freedom to express opinions, freedom of the press, freedom to join political parties, freedom to participate in peaceful protests and demonstrations, freedom to join civil associations and organizations, freedom to sue the government and its agencies, and freedom to vote)

- Guaranteed to a great/medium extent [1]
- Guaranteed to a limited extent/not guaranteed [0]

Do you listen to or read the Qur'an/the Bible?

- Always [3]
- Most of the time [2]
- Sometimes [1]
- Rarely/Never [reference category; 0]

Are you a member of a political party?

- Yes [1]
- No [0]

Are you a member of a civil society organization? (includes a charitable society, professional association/trade union, a youth/cultural/sports organization, a family/tribal association, any other civil society organization that was not mentioned)

- Yes [1]
- No [0]

Are you a member of or participant in a Facebook page?

- Yes [1]
- No [0]

Do you use the internet for political activities (find out about political activities taking place in your country, express your opinion about political issues, find out about opposing opinions in your country)?

- Yes [1]
- No [0]

Do you attend Friday prayer/Sunday services?

- Always [3]
- Most of the time [2]
- Sometimes [1]
- Rarely/Never [reference category; 0]

Age

- Interval variable [18-89]

Gender [Gender]

- Male [1]
- Female [0]

Are you interested in political affairs? (includes the extent of interest in politics and the extent of following political news in your country)

- To a great/medium extent / (Very) Interested [1]
- To a limited extent / Not interested / I do not follow political news at all. [0]

Appendix 3: Figures and Tables

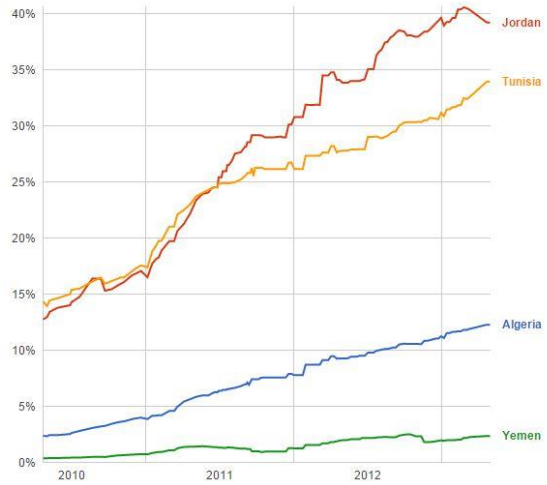
Table A.9: Link btw. Food Insecurity, Oil Trade, and Societal/Interstate Conflicts

	Major episodes of political violence - Polity IV									
	Number of societal and interstate conflicts (average intensity; 1–10)						Number of societal and interstate conflicts			
	1980–1989		1990–1999		2000–2008		2009	2010	2011	2009–2011
Food-security challenged countries	**45**	**(5.82)**	**60**	**(4.02)**	**40**	**(4.08)**	**4**	**4**	**7**	**15**
Oil exporters	*16*	*(7.38)*	*36*	*(4.58)*	*28*	*(4.00)*	*3*	*3*	*4*	*10*
Algeria	0		9	(4.00)	5	(4.00)	0	0	0	0
Iran	8	(8.50)	8	(4.00)	0		0	0	0	0
Iraq	1	(8.00)	8	(4.50)	9	(4.33)	1	1	1	3
Libya	0		0		0		0	0	1	1
Sudan	7	(6.00)	10	(6.00)	9	(5.33)	1	1	1	3
Yemen	0		1	(1.00)	5	(1.00)	1	1	1	3
Oil importers	*29*	*(4.97)*	*24*	*(3.17)*	*12*	*4.25*	*1*	*1*	*3*	*5*
Comoros	0		0		0		0	0	0	0
Djibouti	0		4	(1.00)	0		0	0	0	0
Egypt	0		8	(1.00)	0		0	0	1	1
Jordan	0		0		0		0	0	0	0
Lebanon	10	(8.20)	2	(7.00)	3	(2.00)	0	0	0	0
Mauritania	1	(2.00)	0		0		0	0	0	0
Morocco	10	(3.00)	0		0		0	0	0	0
Somalia	2	(5.00)	10	(5.00)	9	(5.00)	1	1	1	3
Syria	6	(3.33)	0		0		0	0	1	1
Tunisia	0		0		0		0	0	0	0
Food-secure countries	**10**	**(3.20)**	**12**	**(3.33)**	**10**	**(1.00)**	**0**	**0**	**0**	**0**
Oil exporters	*0*	*0.00*	*2*	*(5.00)*	*5*	*(1.00)*	*0*	*0*	*0*	*0*
Bahrain	0		0		0		0	0	0	0
Kuwait	0		2	(5.00)	0		0	0	0	0
Oman	0		0		0		0	0	0	0
Qatar	0		0		0		0	0	0	0
Saudi Arabia	0		0		5	(1.00)	0	0	0	0
United Arab Emirates	0		0		0		0	0	0	0
Oil importers	*10*	*(3.20)*	*10*	*(3.00)*	*5*	*(1.00)*	*0*	*0*	*0*	*0*
Turkey	10	(3.20)	10	(3.00)	5	(1.00)	0	0	0	0

Source: Breisinger et al., 2012:45

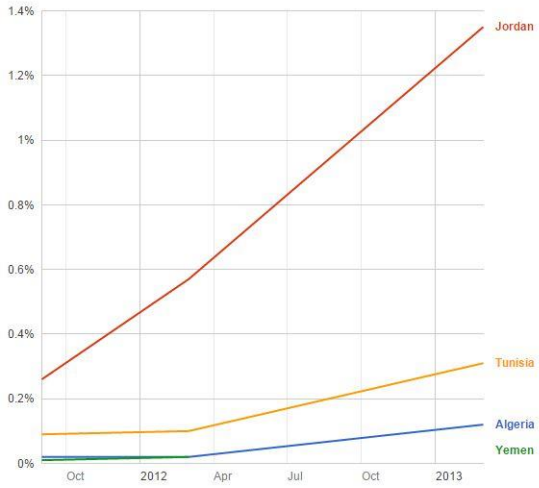
Note: Two relevant issues appear evident from Table A.9. First, food-security challenged countries (depicted by the upper half) appear to have exponentially more major episodes of political violence than food-secure countries. Second, among the security-challenged countries, oil exporting countries appear to experience more episodes of political violence than oil importing countries. This suggests that food-insecure, oil exporting countries are most prone to experience societal or interstate conflicts.

Fig. A.1: Facebook Penetration



Source: ASMR, 2013.

Fig. A.2: Twitter Penetration



Source: ASMR, 2013.

Figure A.3: Respondents' Participation in the Arab Spring in Selected Countries

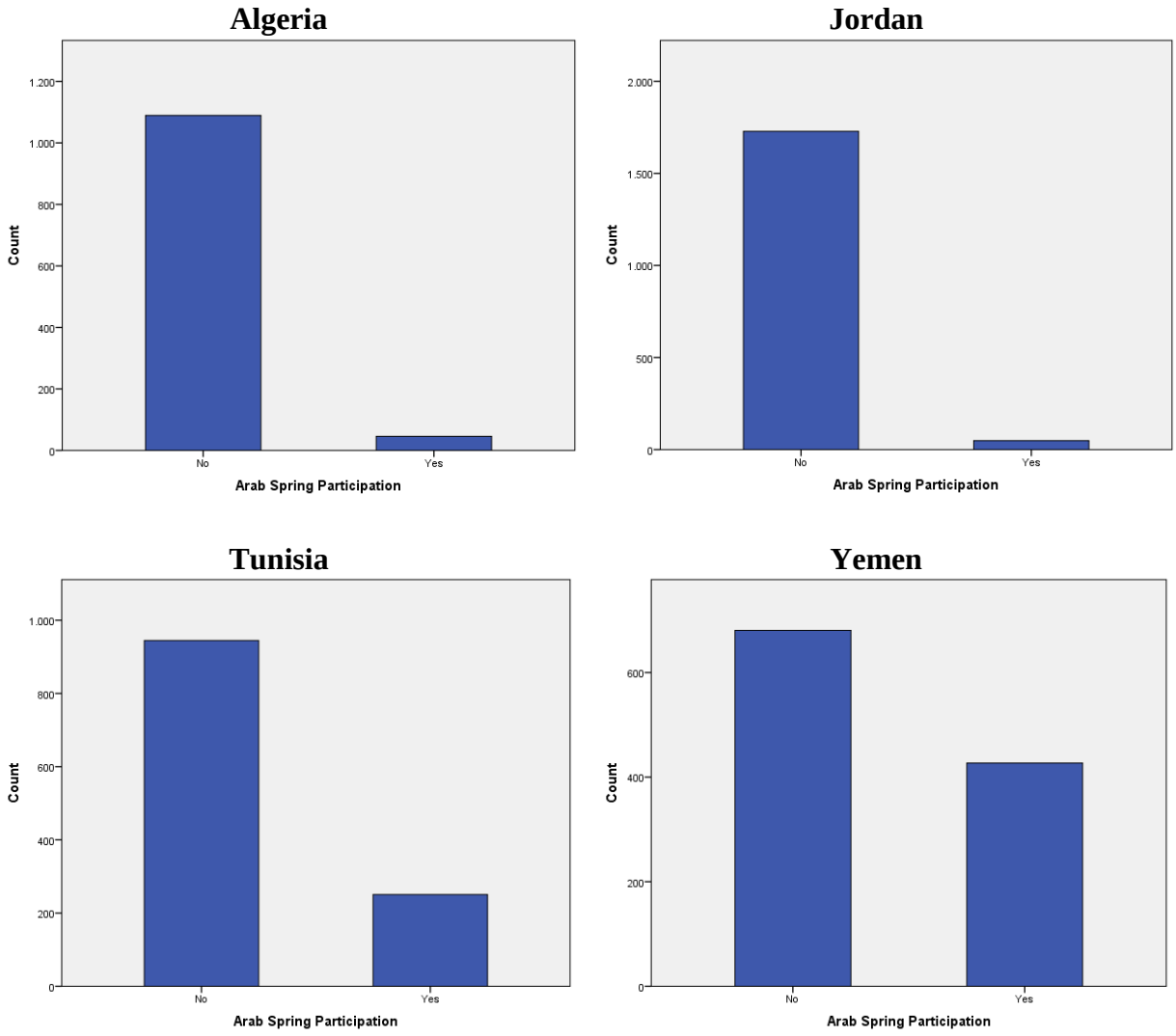
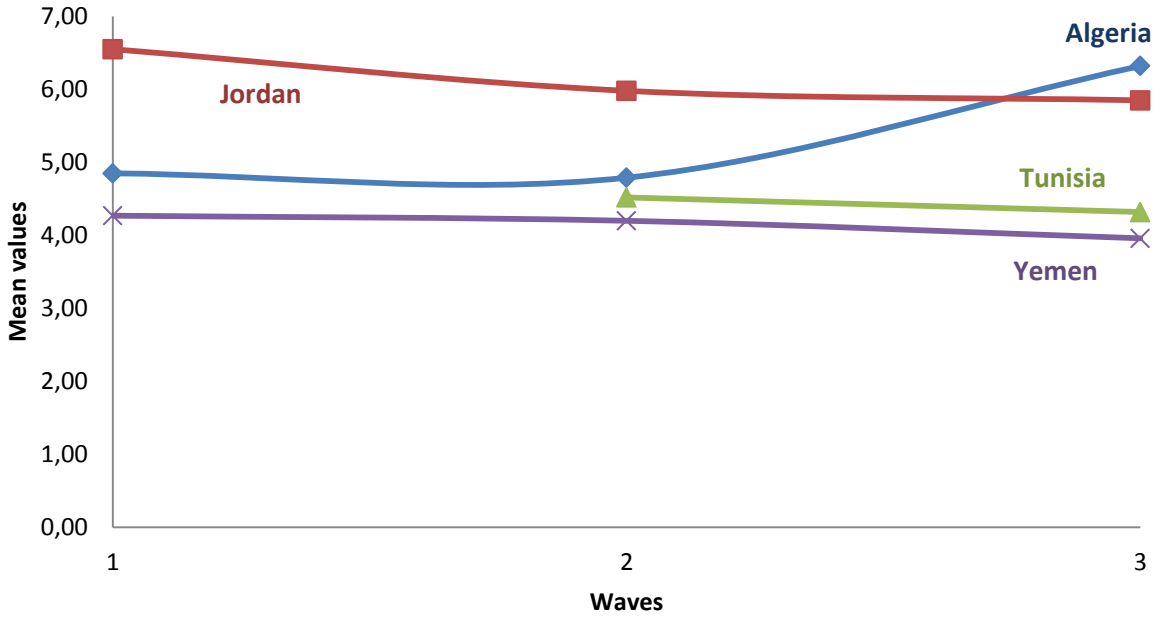
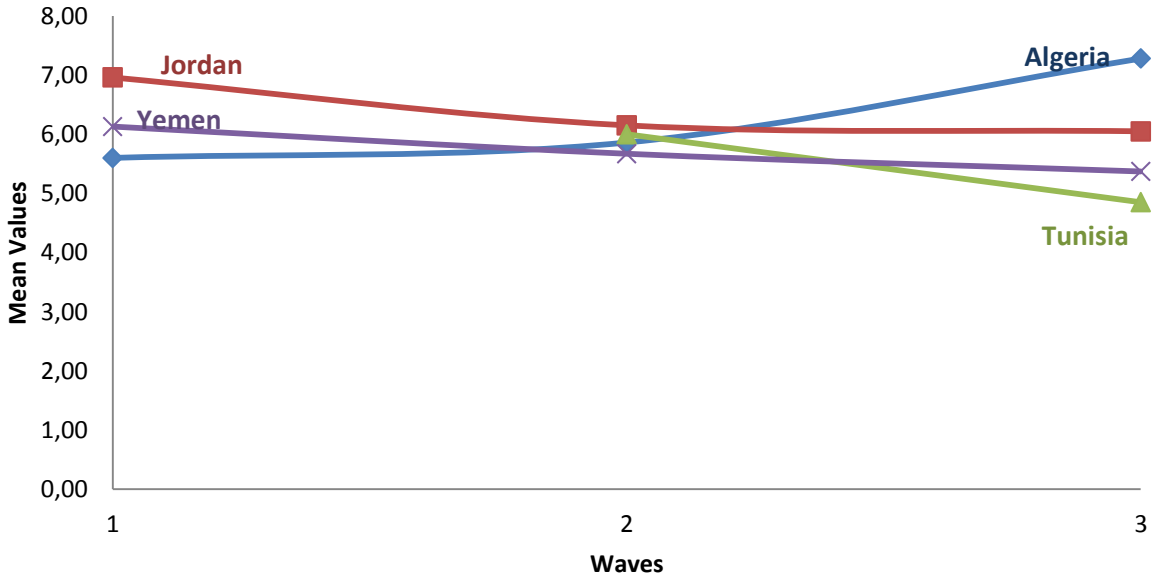


Figure A.4: Perception of country being democratic
(mean values on a scale of 0-10)



Note: Respondents were asked to rank their perception of their home country being democratic on a scale from 0 to 10. (For some earlier waves from 1 to 10, but I adjusted for that minor divergence.) The lines reflect the mean values of all respondents for each country in each wave. Wave 1: 2006-8; Wave 2:2010-11; Wave 3: 2012-14.

Figure A.5: Perception of democracy being suitable for the country
(mean values on a scale of 0-10)



Note: Respondents were asked to rank their perception of democracy being suitable/appropriate for their home country on a scale from 0 to 10. (For some earlier waves from 1 to 10, but I adjusted for that minor divergence.) The lines reflect the mean values of all respondents for each country in each wave. Wave 1: 2006-8; Wave 2:2010-11; Wave 3: 2012-14.

Figure A.6: Democracy-Islam Nexus and Arab Spring Participation (AB, wave 3, all countries)

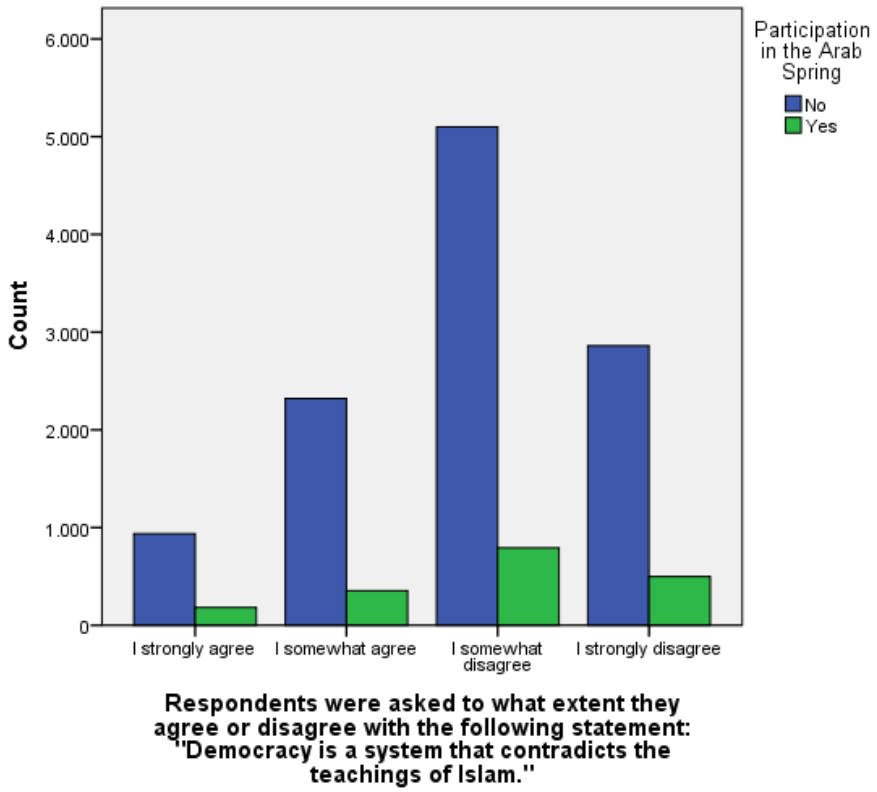
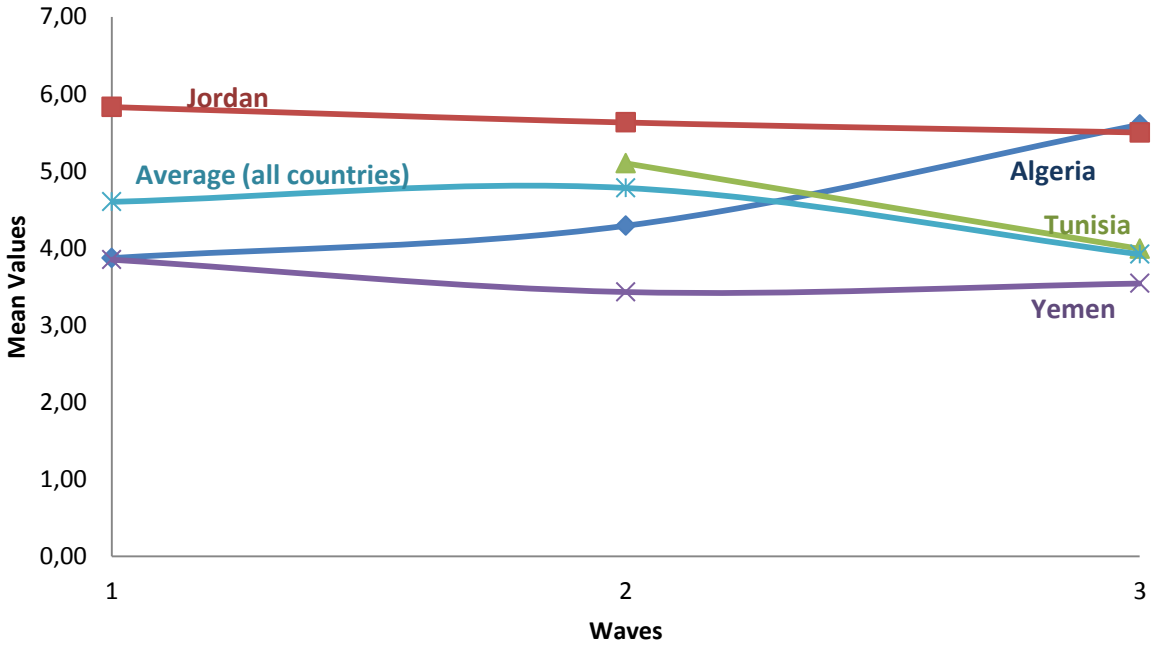


Figure A.7: Satisfaction with the Government

(mean values on a scale of 0-10)



Note: Respondents were asked to rank how much they were satisfied with their government on a scale from 0 to 10. (For some earlier waves from 1 to 10, but I adjusted for that minor divergence.) The lines reflect the mean values of all respondents for each country in each wave. Wave 1: 2006-8; Wave 2:2010-11; Wave 3: 2012-14.

Table A.10: Macro Indicators of Developmental Status by Country

	Algeria	Jordan	Tunisia	Yemen
General Living Standards				
.UN Human Development Index, 2010	0.68	0.68	0.68	0.44
.Inequality-adjusted life expectancy at birth index, 2010	0.69	0.73	0.75	0.48
.Percentage of population without access to improved water services, 2008	17	4	6	38
.Percentage of population without access to improved sanitation services, 2008	5	2	15	48
.Percentage of population without electricity, 2008	1	0	1	62
.Intensity of food deprivation (% of shortfall in minimum dietary requirements), 2004-2006	10	6	10	16
.Percentage of population living in urban areas, 2010	66	79	67	32
.Percentage of pop. below the poverty line, 1989-2010	23	14	4	45
Median Age in Years, 2010	26.20	22.80	29.10	17.80
Gender				
.Gender Gap Index (rank out of 142), 2008	126	134	123	142
.Percentage of seats in parliament held by women, 2008	65	8.50	19.90	0.70
Education				
.Female population with at least secondary education (%, 25 and older), 2008	36.30	57.60	33.50	7.60
.Male population with at least secondary education (%, 25 and older), 2008	49.30	73.80	48.00	24.40
.Adult literacy rate (% of pop. age 15 or older), 2008	72.60	92.20	78.00	60.90
Freedom to Express Opinions				
.Press Freedom Score (lower means more freedom), 2009	49.60	31.90	61.50	83.40
.Number of verified cases of journalists imprisoned, 2009	0	0	2	2
.Social Regulation of Religion, 2008	High	Low	Medium	High
Employment				
.Employment to population ratio (% of total population ages 15-64), 2008	39.20	35.70	40.50	39.00
Social Media				
.Percentage of population covered by a mobile phone network, 2008	82	99	100	68
.Internet Users per 100 people, 2008	11.90	27.00	27.10	1.60
.Number of Internet Hosts, 2010	572	42,412	490	255

Sources: ARDA, 2011; WEF, 2014.

Table A.11: Reasons for Arab Spring Participation (Wave 3, AB)

	Yemen	Tunisia	Jordan	Algeria	Average
Participants in Arab Spring	39% (470)	19% (223)	4% (56)	3% (46)	14% (1998)
Reason for Participation					
- Conviction	33% (393)	16% (197)	2% (43)	3% (34)	11% (1656)
- Group Pressure	5% (63)	2% (26)	1% (12)	2% (18)	2% (317)
Reason for Abstinence					
- Did not agree on the political changes	12% (147)	1% (10)	3% (56)	2% (21)	7% (1075)
- Did not know who to support	9% (108)	3% (34)	3% (45)	3% (34)	7% (967)
- Did not know how to participate	5% (54)	6% (68)	2% (31)	4% (46)	5% (783)
- Afraid of participating	7% (89)	14% (165)	3% (48)	5% (66)	7% (1053)
- Did not care / it was not important	13% (150)	42% (508)	75% (1344)	60% (728)	48% (7119)
- Other	6% (74)	15% (175)	9% (161)	6% (69)	6% (868)
Perceptions regarding Outcome of Arab Spring					
- Feeling of personal loss	18% (220)	26% (308)	27% (490)	13% (152)	19% (2840)
- Difficult to define	35% (421)	35% (424)	27% (484)	35% (429)	41% (6053)
- Feeling of victory	21% (250)	34% (406)	13% (230)	9% (108)	19% (2742)
Three Main Reasons that led to the Arab Spring *					
- Civil and political freedoms, and emancipation from oppression	First	First (only one over 50%: 52%)	Second	Second	First
- Betterment of the economic situation	Second	Second	First	First	Second
- Fighting corruption	Third	Third	Third	Third	Third

Note: Numbers in brackets are numbers of respondents. *Don't know* or *refused to answer* responses are excluded.

*****For all four countries, those three main reasons were followed by "increased social justice", "rule of law", "dignity" and "social and economic justice". The two reasons of "weakening the political and economic relations with the West" and "weakening the political and economic relations with Israel" were in none of the countries even slightly representative. It was also asked, if respondents perceived these "reasons" already realized by the Arab Spring yet. For all countries, only about one third of the respondents answered this positively.

Figure A.8: Residual Plot – Algeria

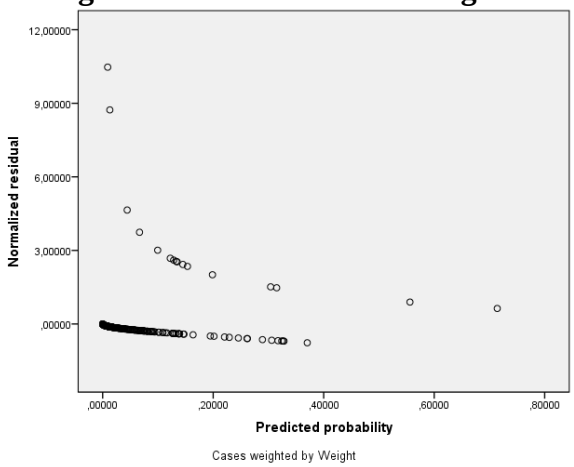


Figure A.9: Residual Plot – Jordan

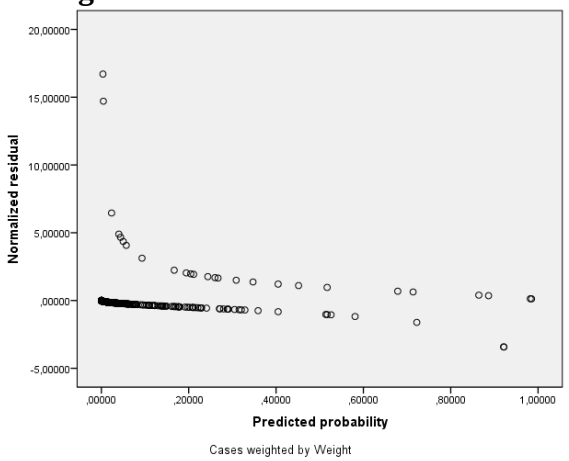


Figure A.10: Residual Plot – Tunisia

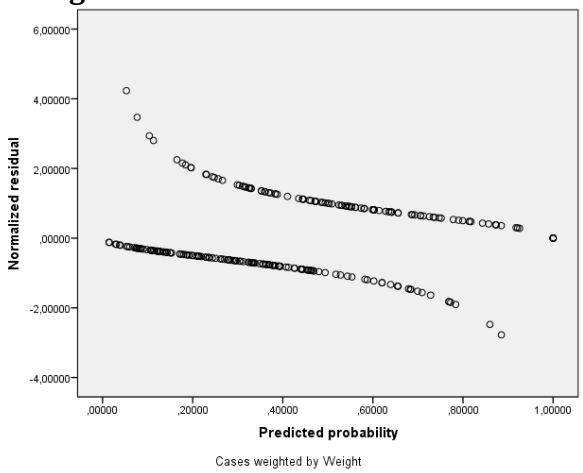


Figure A.11: Residual Plot – Yemen

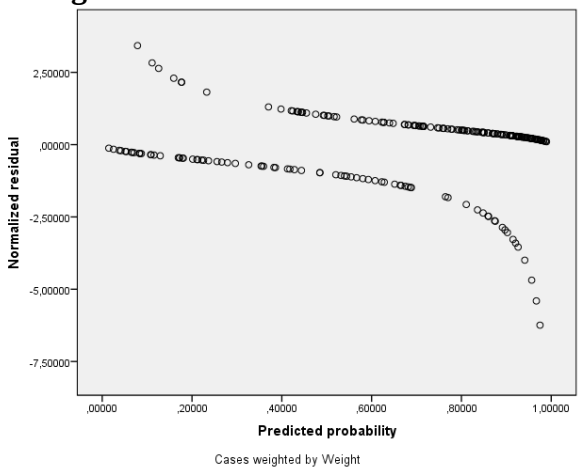


Table A.12: Freedom House Index Scores, MENA countries, 2004-2014

	Algeria	Bahrain	Egypt	Iraq	Israel	Jordan	Kuwait	Leb.	Moroc	Oman	Qatar	Saudi A.	Syria	Tunisia	UAE	Yemen	Avg.
2004	5,50	5,00	5,50	6,00	2,00	4,50	4,50	5,50	4,50	5,50	5,50	7,00	7,00	5,50	6,00	5,00	5,2813
2005	5,50	5,00	5,50	5,50	1,50	4,50	4,50	4,50	4,50	5,50	5,50	6,50	7,00	5,50	6,00	5,00	5,125
2006	5,50	5,00	5,50	6,00	1,50	4,50	4,00	4,50	4,50	5,50	5,50	6,50	6,50	5,50	5,50	5,00	5,0625
2007	5,50	5,00	5,50	6,00	1,50	4,50	4,00	4,50	4,50	5,50	5,50	6,50	6,50	6,00	5,50	5,00	5,0938
2008	5,50	5,00	5,50	6,00	1,50	5,00	4,00	4,50	4,50	5,50	5,50	6,50	6,50	6,00	5,50	5,00	5,125
2009	5,50	5,50	5,50	5,50	1,50	5,50	4,00	4,00	4,50	5,50	5,50	6,50	6,50	6,00	5,50	5,50	5,1563
2010	5,50	5,50	5,50	5,50	1,50	5,50	4,50	4,00	4,50	5,50	5,50	6,50	6,50	6,00	5,50	5,50	5,1875
2011	5,50	6,00	5,50	5,50	1,50	5,50	4,50	4,50	4,50	5,50	5,50	7,00	7,00	3,50	6,00	6,00	5,2188
2012	5,50	6,00	5,00	6,00	1,50	5,50	5,00	4,50	4,50	5,50	5,50	7,00	7,00	3,50	6,00	6,00	5,25
2013	5,50	6,00	5,50	5,50	1,50	5,50	5,00	4,50	4,50	5,50	5,50	7,00	7,00	3,00	6,00	6,00	5,2188
2014	5,50	6,50	5,50	6,00	1,50	5,50	5,00	4,50	4,50	5,50	5,50	7,00	7,00	2,00	6,00	6,00	5,2188

Note: For readability, the countries shaded in gray are not included in Figure 1.3.